PROCEEDINGS

OF THE

THIRTEENTH ANNUAL CONVENTION OF THE AMERICAN INSTITUTE OF ARCHITECTS,

HELD IN THE

DIRECTORS' ROOM OF THE EQUITABLE LIFE ASSURANCE SOCIETY,
120 BROADWAY, NEW YORK,

November 19 and 20, 1879.

THE convention was called to order at 10 A. M., by the President.

At the suggestion of the Committee of Arrangements, special committees were appointed, to whom might be referred the various subjects which should come before the convention, with the object of facilitating the despatch of business.

The chair being authorized to make the appointments, designated the following : —

On Membership : Messrs. Haight, McLaughlin, Baur, Robertson, and Ware.

On By-Laws : Messrs. McArthur, Hunt, Morse, Cabot, and Lind.

On Finance : Messrs. Hatfield, McArthur, Stone, Upjohn, and Willett.

On Meetings of the Annual Convention : Messrs. Wilson, Potter, Longfellow, Carpenter, and Murdoch.

On Election of Officers and Standing Committees : Messrs. McKim, Lienau, Hardenbergh, Harney, and Renwick.

On the Schedule of Professional Charges : Messrs. Cady, Cummings, Mason, Gambrill, and T. P. Chandler.

Before proceeding to business, the convention listened to a few remarks from Mr. Henry D. Hyde, president of the Equitable Company, welcoming the members to the use of the rooms.

Next in order was the President's Annual Address.

PRESIDENT WALTER'S ADDRESS.

Fellows and Associates of the American Institute of Architects:

It devolves upon me to-day to open our thirteenth annual convention with an address. I shall therefore proceed to discharge that duty.

These annual reunions afford us opportunities for interchange of views in relation to our art, that cannot fail to be interesting as well as profitable.

The changes that are going on in all the elements of design and construction present subjects for discussion which demand our earnest attention. While we seek to enlarge the sphere of ennobling influences to which architecture is peculiarly addressed, it becomes us to confer freely on the aspect of the present methods of embodying architectural thoughts, both as relates to æsthetic handling and to scientific construction.

The objects of our meeting are, substantially, the transaction of business growing out of our corporate relations, the general advancement of architectural science, the progress and improvement of the cognate arts, and whatever may tend to promote the interests of the profession.

The reports of the Board of Trustees and the several Chapters will be duly laid before you, and we hope to be instructed by the reading of interesting papers by the members. The Institute, as a scientific and professional organization, appears to be exerting a decided influence for good on the public mind, in all matters pertaining to our art; and its usefulness in promoting a proper degree of fellowship in the profession is every year more apparent.

There has been considerable architectural activity throughout the country since our last annual convention. It should, however, be remarked that but few buildings having claims to magnificence have been projected, though many grand and costly structures, commenced in former years, have progressed with satisfactory results. Works of more recent date exhibit a freshness in their architectural handling that seems to vindicate the advent of a new era in the arts of design. The manifest tendency of architects to break away from the trammels of conventional rules and to make style subservient to the spirit of the age, indicates a progress in the development of independent thought hitherto unknown.

Architecture, both in this country and in Europe, is obviously in a transition state. What may be the result of this new departure remains to be seen; if, however, architects are careful to design their work on true æsthetic principles, and in conformity with the sciences which underlie our art, it is not likely to be regretted that they show a disposition to do their own thinking.

Classic forms and classic combinations are everywhere yielding to more ornate compositions bearing the names of Queen Anne, the Stuarts, the Jacobean, the Italian Renaissance, the style called "Eastlake," which it would be difficult to define, and other fashions of building, having no trace whatever of paternity, either ancient or modern.

It is, however, greatly to be regretted that a good deal of the architecture of the present day gives but little evidence of conformity with æsthetic principles. We find modern compositions, both in this country and in England, having a decided flavor of the old English Renaissance, or Elizabethan type of building, but which manifest a lamentable want of vigor in the form of their masses, and an aggregation of trivialities in the making up of details, which awaken emotions in the cultivated mind that are anything but pleasing.

The largest license in architectural composition is undoubtedly admissible, provided it does not degenerate into the production of forms and combinations that do violence to the elements of fitness, beauty, and stability, which, in all cases, are essential to successful building.

The first involves the planning of our works so as to fulfil the requirements and promote the comfort and convenience of our employers; while the second, which embraces, in the fullest extent, the philosophy of architectural propriety and taste, tends to results that ennoble and elevate our science; and the third, comprising stability of construction in all its ramificat ons, insures the safety and durability of our work.

As regards the peculiar claims of domestic architecture on the skill of the profession, they are undoubtedly greater than they have ever been before; and it is only by becoming thoroughly acquainted with the increasing requirements of the age in reference to buildings intended for domestic purposes, that an architect can keep pace with the progressive elements of his profession. Improved processes for warming and ventilating buildings are continually being developed, and questions relating to drainage, to the disposition of sewer gas, and to other sanitary appliances that are now profoundly occupying scientific minds, should be regarded by the architect as objects of study that demand the most serious attention. It should also be remarked that the requirements of modern civilization and taste are not to be met without an intelligent knowledge of what is going on in the outside world in relation to improvements in building appliances. We have now a thousand and one inventions which furnish us with every conceivable object of usefulness and beauty in the building art, of better design, of better materials, of better workmanship, and at cheaper rates than were ever known before. It is therefore to our interest to keep abreast of the times, so as to utilize all modern devices for the perfection of our works. In relation to the present status of the Institute, and its outlook for the future, I have the satisfaction to say that it is evidently exerting a decided influence for good on the public mind in all matters pertaining to our art, and that architects in general are deriving from it, directly or indirectly, advantages that never could have been realized if the profession had remained without a corporate existence. It therefore becomes our duty to seek to enlarge our field of usefulness by increasing the membership of the Institute until it embraces respectable practitioners in every considerable centre of civilization throughout the country.

It is greatly to be regretted that a large number of respectable and in many cases distinguished architects in our most important cities have never yet become members of the Institute, while it is known full well that many who are outside of our organization are not inferior in professional standing to any who are within it. It would be well, and in no small degree courteous, if steps were taken, by making exceptional modifications in our terms and processes of admission, to receive all such into membership of the Institute, upon their expressing in writing a desire to that effect.

Whatever promotes the consolidation of the profession tends to lead the public to a higher appreciation of architectural genius, and to inspire confidence in the principles which govern scientific building.

The peculiar relations of architecture to civil life render it desirable to institute popular educational processes by which the public mind may be reached and instructed in the general principles which govern fitness, propriety, and good taste in architectural composition.

Unlike other professions, architecture primarily addresses the eye, and its developments are always exposed to view. It is, therefore, incumbent on us to enlighten the public in reference to its æsthetic elements, as well as to the sciences which underlie its practice and to its historic relations. This may be done by illustrated lectures, by popular articles in our architectural publication, and in scientific and other periodicals. This subject has often been alluded to in the proceedings of the Institute, and in the Chapters, but we have never yet taken any concerted steps in this direction.

The architectural training pursued in many of our educational institutions is important as far as it goes, but it fails to reach the general public. I would, therefore, suggest that regular courses of public lectures on architecture, with proper illustrations, be delivered under the auspices of the several Chapters during the winter months, by such of the Fellows of the Institute as may be willing to perform that service. By directing our energies to the accomplishment of the objects for which we are associated, even though it may require labor and self-sacrifice, we shall be accumulating, as well as dispensing knowledge by which our sphere of usefulness in the practice of our art will be greatly enlarged, and those who call upon us for professional service will entertain a more intelligent and proper appreciation of our works.

Having said all that appears to be necessary by way of formally opening the convention, it remains for me to congratulate you on the return of our annual convocation, and to recognize with gratitude the goodness of Divine Providence in bringing us together at the close of another year, to do fresh work for the advancement of the interests of our profession. Let us endeavor to improve the opportunity thus afforded us, so that our deliberations may tend to enhance the dignity of the Institute, and to enlarge the field of its usefulness.

Mr. Congdon read the report of the Board of Trustees: —

THIRTEENTH ANNUAL REPORT OF THE BOARD OF TRUSTEES TO THE AMERICAN INSTITUTE OF ARCHITECTS, NEW YORK, NOV. 19, 1879.

MEETINGS.

Your Board of Trustees has respectfully to report, that since the last convention the usual number of quarterly and monthly meetings have been held, through the courtesy of Mr. J. C. Cady, at his office, No. 111 Broadway.

ELECTIONS.

Three Fellows have been elected, viz.: Mr. J. J. Hardenbergh, New York; Mr. David W. Gibbs, Cleveland, O.; Prof. N. Clifford Ricker, Champaign, Ill.; and one Associate, Mr. J. W. Reid, Evansville, Ind.

EXPENSES.

For the purpose of reducing expenses to the lowest possible limit, your Board decided to give up entirely separate rooms for the Institute, which has been done, the Secretary taking possession of the records, stationery and cabinet containing the same, and storing them in his own office, No. 111 Broadway; the New York Chapter assuming charge of books, pamphlets, photographs, pictures, and one of the large cases belonging to the Institute; Mr. Holly, of 111 Broadway, kindly consenting to store in his office the remaining two cases, — having the use of one; and the Institute using the other for storage of proceedings, etc.

As an offset to the benefits of this enforced economy, the Institute has no local habitation or name, no library where books, pamphlets, and photographs may be examined, no meeting-room where members may associate and strangers be entertained; but with renewed interest in its welfare, increased membership, and consequent financial success, it is hoped that this unfortunate position may be remedied, and the Institute firmly established as originally intended.

TREASURER.

The office of Treasurer having become vacant by the sudden and lamented death of Mr R. G. Hatfield, Treasurer of the Institute and President of the New York Chapter, the Board of Trustees elected Mr. O. P. Hatfield to fill the vacancy, and he has since faithfully performed the duties of the office.

Your Board, at their meeting of March 5, 1879, unanimously adopted the following minute, and ordered it to be entered upon the records of the Institute: —

MINUTE.

"The Board of Trustees, assembled for the first time since his death, desirés to express in a public manner its sense of regret at the loss which, through the death of its chairman, Mr. R. G. Hatfield, the Institute, the architectural profession of the city, and the public have sustained.

"To Mr. Hatfield's untiring interest in the conduct of the affairs of the Institute a large measure of its success and influence was due; and his able and honorable practice of architecture has had no small weight in establishing the position which the profession now enjoys.

"The Board of Trustees gratefully calls to mind the fact, that all Mr. Hatfield's intercourse with its members has been marked by uniform courtesy; and that his temperate counsel and consideration had won from them unqualified regard and respect."

SECRETARY.

The Secretary elected by the last convention, Mr. Charles D. Gambrill, having declined the office, your Board elected Mr. H. M. Congdon to fill the vacancy, at their meeting of March 5, 1879, and he has since performed the duties of the office.

ACTION OF CHICAGO CHAPTER.

Among the subjects of interest brought before your Trustees for their consideration may be stated the communications received from the Chicago and Cincinnati Chapters.

The former relates to the question of dues owing to the Institute from former members, whom the president of the Chapter is desirous to have rejoin the Chapter; but he is unwilling to ask this, unless the Institute can find it advisable to remit its portion of past dues, the Chapter being willing and desirous to do likewise. The president of the Chicago Chapter reports that "as the Chapter is now small and weak, this reaccession of old members, many of them occupying prominent positions in the profession, would give it the needed strength and fellowship"; but with the letter of the By-Laws before them, your Board felt that they had no power to grant the request, and could only promise to bring the matter to the favorable consideration of the convention.

CINCINNATI CHAPTER.

The communication from the Cincinnati Chapter referred to the non-membership in the Institute of many of their number from the same cause, — viz. the non-payment of dues, — but who still seemed to be retained on their rolls, and returned as members in their last annual report. Their election of officers, also, was not in strict accordance with the By-Laws, to which their attention was called.

On Jan. 29, 1879, the secretary of the Cincinnati Chapter wrote to the Secretary of the Institute that "one year previous he had asked that they be discontinued as a Chapter," and stated that "the position of the Cincinnati architects was very simple and very decided, — that they thought the Institute dues too high; that they fully appreciated the importance and necessity of a national organization, and were willing and anxious to support the same to the fullest extent, and yet they cannot comprehend why it should require such large dues to keep up such an organization." He concludes: "We make no petition, we ask no action on your part, but simply state the reason why we have dropped out of the list of Chapters."

Your Trustees could only reply that they were powerless to act in the matter, but would decline to take the names from the rolls, as per their last annual report, until the matter was finally decided by the next convention, and it is therefore laid before you for your action; and while regretting the special legislation required, we would recommend to your favorable consideration the question of remitting past dues in the case of the Chicago and Cincinnati Chapters, in the hope that with the returning tide of prosperity in store for the country at large the Cincinnati architects may not find excessive the dues for Fellows at $15 per annum, and for Associates at $7.50, payable semi-annually in two equal instalments.

ASSESSMENTS.

At their meeting of April 18, 1879, your Board considered the question of the assessment levied at the last convention for the purpose of publishing the proceedings of the eleventh and twelfth conventions; viz , $8 for Fellows and $4 for Associates; and it was moved and carried that "owing to the strong expressions of dissatisfaction and protest against the assessment levied at the last annual convention for the purpose of publishing the proceedings of that and the preceding year, the Board of Trustees take it upon themselves to act for the best interests of the Institute, and the Treasurer be requested to hold in trust the amount collected, and not used for the purpose named, and the whole matter be held over for instructions from the next annual convention." At their meeting of Oct. 10, 1879, a special committee appointed to report a definite policy upon this subject to the convention, reported "that the assessment fund now held in trust by the Treasurer should be credited by him, on account of annual dues, to those members who had paid the assessment." Your Board of Trustees confirm the action of this special committee, and make the above recommendation.

GENERAL WELFARE.

Your Board has discussed, at various times, matters pertaining to the general welfare of the Institute, and has deplored the fact that from causes at present unexplained there seems to arise, both among its members and also to those not of us, the question, "What advantageth it me"; and the negative manner of conclusion seems to be shown both in the apathy of many of its members, and the apparent lack of desire on the part of the younger men to become Associates

Certainly none can look for or desire a mere selfish interest in a body whose general welfare promotes that of each one of its members.

An association of professional gentlemen, who occupy themselves in a most comprehensive art service, refining in its nature and ennobling in its aims, where the unity of a brotherhood gives force and stability to its action, must continue to raise (as it has hitherto) the moral tone of the profession, and also, as a consequent result, win the better appreciation of the unlearned, who in times past — and it may be even now — look upon our profession as a trade, and our Institute as a trades union.

Surely each member of the Institute should be zealous of its welfare upon a broader ground than that of self-interest, and seek to elevate to this higher plane others of our profession who do not now belong to us.

In both numbers and zeal there is room for improvement, and while fully admitting that the Institute ought to be a select body, and as such to some extent exclusive, — taking the profession at large, — its membership should be doubled, and thus give the central society of a profession so widely spread the strength it so greatly needs.

If the constituency be strengthened and widened, and new members brought in, the natural result will be greater animation, increased vigor, and, generally speaking, a more healthy vitality; and internal activity would be as natural a consequence as financial success.

How to do this, and how to awaken a corresponding interest on the part of its members, opens such an opportunity for friendly advice and discussion that your Board feels averse to giving definite expressions to any plan of action; but in their talks among themselves some opinions were uttered which may be considered as suggestions, in a certain direction, toward arousing a spirit of healthy emulation, and an honorable preferment as a reward.

There are architects eminent in the profession who were once Fellows, but from various causes have resigned, and others who have lapsed from inability, perhaps, to continue their payments, or from a lack of interest in continuing their membership.

There are Associates who take the very front rank in ability and professional skill, and carry out in their practice the purposes of the Institute, but who apparently fail to see any advantage in becoming Fellows; or who, at any rate, show an indifference in making such application.

It has been suggested in the Board of Trustees that the foregoing facts may be partly alleviated by giving the Board power (without referring the matter to Chapters, as now) to elect Fellows from among the older architects (who do not now belong to any Chapter association), without the present proviso of a semi-examination, *i. e.*, by the presentation of plans and designs showing their work. Many would, no doubt, gladly avail themselves of the advantages conferred by a membership in the institute, but are unwilling — and naturally so — to plead their well-established merits by submitting to the necessary formalities required of younger men just entering the profession.

It has also been suggested that the Board of Trustees be empowered, in their discretion, to advance from the grade of Associates to that of Fellows any such of the former who have distinguished themselves by especially meritorious work.

That such advancement may be made by the Trustees, without consultations with Chapters, and be considered as an honorable distinction, and that the usual entrance fee required of Fellows be remitted in these cases, but otherwise they shall be subject to the same annual dues as Fellows regularly nominated and elected.

In the American Society of Civil Engineers your Board is informed that no one loses entirely his membership by the non-payment of dues; the names are contiuued on the rolls, but the delinquents have no voice in the government, and no share in the distribution of periodical proceedings. Full reinstatement can be had only by making accounts good with the Treasurer.

This statement is made to the convention for their consideration, without expression of opinion on the part of the Trustees.

In conclusion, the Board is happy to call the attention of the convention to the published proceedings of the last two years, as a manifest improvement, in spite of a few errors and marks of haste; and especially congratulate the Publication Committee and its Editor upon the evidence of zeal and careful attention to the work undertaken.

Respectfully submitted by the Board of Trustees.

H. M. CONGDON, *Secretary.*

November 19, 1879.

President Walter observed that the coincidence between the principal subject of his address and that which formed an important part of the Trustees' report, — the increase of membership, — was purely accidental. He was, however, glad to see that it had occurred to the Trustees as well as to himself. The report of the Trustees was laid on the table for further consideration.

Mr. O. P. Hatfield then read the Treasurer's report, of which the following is an abstract: —

TREASURER'S REPORT.

O. P. HATFIELD, *Treasurer, in account with* AMERICAN INSTITUTE OF ARCHITECTS.

Dr.

Balance from last report	$526 30
Cash from sale of furniture	3 70
" initiation fee	10 00
Contributions	371 00
Cash from assessments of November, 1878	172 00
" sale of publications	3 00
Total receipts	$1,086 00

Cr.

Cash paid secretary's clerical services	$221 50
" secretary's expenses	19 26
" treasurer's clerical services	140 36
" treasurer's expenses	6 96
" agreements	20
" editing Proceedings, 1877-1878	152 96
" printing Proceedings, 1877-1878	307 86
" room expenses	10 00
Balance to next report	226 90
	$1,086 00

Mr. Le Brun was appointed Auditor, and the report was referred to the Finance Committee.

Chapter reports were next in order, and that of the New York Chapter was read as follows: —

REPORT OF THE NEW YORK CHAPTER.

New York, Nov. 18, 1879.

To the American Institute of Architects:

In accordance with your By-Laws, the secretary of the New York Chapter respectfully submits the following report of its proceedings, since your last convention.

Formal business has been transacted at only five of the business meetings, the others having failed for want of a quorum. Two of the social meetings were omitted, and the Executive Committee has recently reported to the Chapter in favor of a project for holding the social meetings up-town in the evening, alternately with the usual business meetings in the afternoon down-town.

Last year the Chapter, with the Institute, the profession, and the public, suffered a severe loss in the death of Mr. Richard Upjohn. This year a like misfortune has occurred in the death of Mr. R. G. Hatfield, the life Treasurer of your body, and at the time of his death, president of the New York Chapter. He died on the evening of Tuesday, Feb. 18, and a special meeting of the Executive Committee was held the next day, and preparations made for a full attendance of Chapter members at his funeral, which was carried out.

At the next meeting of the Chapter, on March 4, the following minute, prepared by Mr. Cady, was adopted, and an engrossed copy subsequently forwarded to the family of the deceased:—

"This Chapter feels most deeply the loss of its late president, Mr. R. G. Hatfield, who for so long a time has directed its affairs with wisdom and fidelity to its best interests, and places upon record its testimony both to his high character and attainments, as well as the sense of obligation they feel for his long and valuable services.

"His superior scientific qualifications caused him to be regarded as authority in many branches of his calling, and, combined with his well-known integrity, gained for him the respect not only of the profession at large, but of all with whom he was brought in contact, either personally or by his writings. His name added strength to enterprises with which he was connected, and honor to the New

York Chapter, in the service of which he was most faithful and devoted.

"Its members have long felt that they were peculiarly fortunate in their presiding officer, who not only invited their respect and good-will to an unusual degree, but commanded that of the public generally.

"His devotion and fidelity will long be remembered by his associates, as well as his increasing kindliness and geniality during these later years, when that which was naturally fine in his character seemed not to wither or suffer by time, but rather to be ripened and mellowed by it.

"The loss of such an officer, counsellor, and friend is deeply mourned by this body, appreciating, as it does, his rare qualities and faithful services."

Early in the session the Chapter, jointly with the Mechanics' and Traders' Exchange, was requested by the chief of the Building Department of the city, Mr. H. J. Dudley, to nominate one or more candidates for the office of Deputy Superintendent of that department. The Chapter delegated the nomination to a committee consisting of Messrs. Fernbach, Henry Dudley, and Haight, who subsequently reported that, while regretting the paucity of eligible aspirants, they had recommended Mr. Robert McGinnis for the office.

The superintendent of the building department has also recently invited the Chapter to act in conjunction with the Mechanics' and Traders' Exchange and the Master Carpenters' Association, for the purpose of investigating and reporting on the administration of that department since he has been its chief. The request is still under consideration.

At an early meeting of the Chapter, Mr. Cady read a paper on the use of brick as an architectural material. Mr. Robertson and Mr. Haight have also exhibited specimens of designs in their current practice, those of the former consisting of geometrical renderings in pencil and wash, of the façade of a Queen Anne country house, and an exterior of the style of Francis I., while those of the latter comprised perspective exteriors, in pen and ink, of a country church and a country house, with plans of the latter.

The annexed lists show the officers and standing committees recently elected for the current year, and also the present roll of membership.

Respectfully submitted,

A. J. BLOOR,
Secretary.

OFFICERS AND STANDING COMMITTEES FOR THE OFFICIAL YEAR 1879–80.

President	E. T. Littell.
First Vice-President	Geo. B. Post.
Second Vice-President	R. H. Robertson.
Treasurer	Henry Fernbach.
Secretary and Librarian	A. J. Bloor.

Executive Committee.

E. T. Littell, *ex officio*,
A. J. Bloor, *ex officio*,
Henry Fernbach, *ex officio*,
N. Le Brun,
R. M. Upjohn.

Committee on Admissions.

R. H. Robertson,
A. J. Bloor,
J. C. Cady,
H. J. Hardenbergh,
E. T. Littell, *ex officio.*

Committee on Library and Publications.

Geo. E. Harney,
C. C. Haight,
A. J. Bloor,
C. F. McKim,
E. T. Littell, *ex officio.*

Committee on Education.

Wm. A. Potter,
H. H. Holly,
R. H. Robertson,
H. J. Hardenbergh,
E. T. Littell, *ex officio.*

Committee on Examinations.

Henry Dudley,
R. M. Upjohn,
N. Le Brun,
Geo. B. Post,
E. T. Littell, *ex officio.*

PRACTISING MEMBERS.

J. C. Babcock	*1298 Broadway, New York City.*
A. J. Bloor	*128 Broadway,* " "
J. C. Cady	*111 Broadway,* " "
C. W. Clinton	*56 Wall Street,* " "
Henry Dudley	*49 Wall Street,* " "
Henry Fernbach	*346 Broadway,* " "

Chas. D. Gambrill	*57 Broadway,*	*New York*	*City.*
C. C. Haight	*111 Broadway,*	“	“
H. J. Hardenbergh	*111 Broadway,*	“	“
Geo. E. Harney	*149 Broadway,*	“	“
O. P. Hatfield	*31 Pine Street,*	“	“
H. Hudson Holly	*111 Broadway,*	“	“
R. M. Hunt	*21 Courtlandt St.,*	“	“
E. H. Kendall	*71 Broadway,*	“	“
Joseph Lederle	*196 Broadway,*	“	“
N. Le Brun	*24 Park Place,*	“	“
E. T. Littell	*111 Broadway,*	“	“
Chas. F. McKim	*57 Broadway,*	“	“
Geo. B. Post	*120 Broadway,*	“	“
Wm. A. Potter	*54 William Street,*	“	“
J. G. Prague	*Bible House,*	“	“
James Renwick	*4 Broad Street,*	“	“
R. H. Robertson	*54 William Street,*	“	“
Joseph Sands	*4 Broad Street,*	“	“
B. Silliman, Jr.	*140 Nassau Street,*	“	“
R. M. Upjohn	*111 Broadway,*	“	“

JUNIOR MEMBERS.

B. H. Brown	
R. W. Buckley	*163 East 54th St., N. Y. City.*
Howard S. Bush	*Office of R. H. Robertson, 54 William Street, New York City.*
John H. Friend	*200 East 46th Street, N. Y. City.*
P. H. Gilvarry	*Office of H. J. Hardenbergh, 111 Broadway, New York City.*
Theo. Mead	*Office of R. H. Robertson, 54 William Street, N. Y. City.*
W. J. Merritt	*46 Montgomery Street, Jersey City, N. J.*
Frank H. Norton	*Office of R. H. Robertson, 54 William Street, N. Y. City.*
Douglas Smyth	*111 Broadway, New York City.*
Downing Vaux	*71 Broadway, “ “*
J. E. Whitley	*Office of the “World,” N. Y. City.*
D. D. Williamson	*New Brunswick, N. J.*

HONORARY MEMBERS.

Honorary Member in Perpetuity, having contributed $500 to the Library Fund.

H. G. Marquand	*New York.*

Honorary Members for Life, having contributed $100 to the Library Fund.

*Wm. T. Blodgett
*I. G. Pearson

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*Deceased.

Wm. E. Dodge, Jr.	*New York.*
H. C. Crane	*Yonkers.*
E. C. Moore	“
Henry Chauncey	*New York.*
Samuel G. Ward	“
John Jacob Astor	“
R. L. Kennedy	“
George Cabot Ward	“
Ernest Tuckerman	*Paris.*
Benj. H. Field	*New York.*
A. A. Low	*Brooklyn.*
N. M. Beckwith	*New York.*
*Wm. H. Aspinwall	
Alex. Van Rensselaer	*New York.*
James L. Wise	“
D. M. Barney	“
Ashbel H. Barney	“
Chas. H. Whitaker	“
*Russell Sturgis	
Russell Sturgis	*London.*
John H. Sturgis	*Boston.*
L. Marcotte	*New York.*
Samuel B. H. Vance	“
C. T. Cook	“
J. W. Pinchot	“
Edgar M. Smith	“
Geo. Pancoast	“

The report of the Boston Chapter, which was subsequently received, is inserted here.

REPORT OF BOSTON CHAPTER.

Secretary's Office,
Boston, Nov. 18, 1879.

To the Secretary of the American Institute of Architects:

Sir, — I have the honor to report that this Chapter, during the season of 1878 and 1879, held six meetings; there have been five resignations of Fellows; one Fellow has been dropped; one Fellow and one associate member have been elected. At the meetings wo papers were read in the course of the season, — one by Mr. T. M. Clark, on Contracts, and one by Mr. John A. Fox, on the Construction of Small Theatres; and there have been several formal discussions. The Chapter has also had several reports from Joseph T. Clarke, junior member, regarding the progress of his researches among the remains of the Greek Doric order, undertaken partly under the auspices of the Chapter. The result of these researches promises to be of great interest and value. The discussion of the hypæthral question opened by Mr. Clarke has been printed in the columns of the "American Architect."

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* Deceased.

The Chapter has made efforts, but as yet without success, by the offer of premiums, to encourage the preservation of records of our colonial antiquities in the form of measured drawings.

In the spring the Chapter, in co-operation with the Boston Art Club and the trustees of the Museum of Fine Arts held a joint exhibition of works of art, two rooms out of the five so occupied being devoted to architectural drawings. The exhibition attracted much attention, and was considered a success.

I beg leave to enclose a form of reply adopted by this Chapter to be sent to any dealer or manufacturer of building wares who should in any way offer compensation to architects for recommending or using them.

On the whole, the Business Committee of the Chapter has not been enabled to give to the proceedings for the year a character of activity sufficient to interest the majority of the members, and to attract full meetings. The committee is still engaged in considering how the meetings of the Chapter may be made more profitable.

Respectfully submitted,

HENRY VAN BRUNT, *Secretary.*

OFFICERS.

President	E. C. Cabot.
Vice-President	John H. Sturgis.
Secretary	Henry Van Brunt.
Treasurer	W. G. Preston.

Committee on Admissions.

W. T. Sears, Geo. T. Tilden, Jno. A. Fox.

Committee on Business.

W. P. P. Longfellow, Henry Van Brunt, Robert S. Peabody.

MEMBERS.

J. M. Allen	*New Bedford.*
N. J. Bradlee	*18 Pemberton Square.*
Charles Brigham	*19 Exchange Place.*
E. C. Cabot	*60 Devonshire Street.*
F. W. Chandler	*60 Devonshire Street.*
T. M. Clark	*178 Devonshire Street.*
C. A. Cummings	*9 Pemberton Square.*
S. C. Earle	*9 Pemberton Square.*
A. R. Esty	*35 Congress Street.*
John A. Fox	*12 Post-Office Square.*
H. W. Hartwell	*53 Devonshire Street.*
W. P. P. Longfellow	*Cambridge, Mass.*
W. W. Lewis	*5 Pemberton Square.*
R. S. Peabody	*60 Devonshire Street.*
W. G. Preston	*186 Devonshire Street.*
G. R. Shaw	*17 Congress Street.*
W. T. Sears	*9 Pemberton Square.*
J. G. Stearns	*60 Devonshire Street.*
John H. Sturgis	*19 Exchange Place.*
G. T. Tilden	*7 Exchange Place.*
H. Van Brunt	*60 Devonshire Street.*
L. Weissbein	*3 State Street.*
W. R. Ware	*60 Devonshire Street.*
G. H. Young	*186 Devonshire Street.*
H. P. Clarke	*Mt. Vernon Street.*
G. A. Clough	*City Hall.*

JUNIOR MEMBERS.

W. D. Austin	*60 Devonshire Street.*
J. B. L. Clymer	
G. F. Hammond	*186 Devonshire Street.*
F. M. Howe	*131 Devonshire Street.*
J. T. Clark	
W. C. Richardson	*60 Devonshire Street.*
G. F. Underwood	*66 Devonshire Street.*
H. H. Kendall	*1307 Q St., Washington, D. C.*
F. R. Allen	*28 State Street.*

CIRCULAR ADOPTED FOR SENDING TO DEALERS.

AMERICAN INSTITUTE OF ARCHITECTS, BOSTON CHAPTER.

Secretary's Office,
Boston, April 7, 1879.

Dear Sir, — The secretary of this society has been instructed to forward to all manufacturers and tradesmen who may be reported to him as offering publicly or privately compensation in any form to architects if they will recommend or use their wares, a notice, quoting the Third Section of the Fourth Article of the Constitution of the American Institute of Architects, and informing them that in accordance therewith, and with the obvious proprieties of practice, the profession cannot entertain such propositions; that they are regarded among architects who value their good name as a reflection upon their honor; and that, when made to them, they are compelled in their own defence systematically to avoid the use of all wares so advertised.

The article of the Constitution above referred to is as follows: —

"No member shall accept direct or indirect compensation for services rendered in the practice of his profession other than the fees received from his client."

Very respectfully yours,
Secretary of the Chapter.

Mr. Congdon read the report of the Philadelphia Chapter, as follows: —

REPORT OF PHILADELPHIA CHAPTER.

To the American Institute of Architects:

The Philadelphia Chapter respectfully submits the following report: —

The Chapter has increased considerably in membership since the last report was presented to the convention, and more interest is being now taken in the organization

The first of a series of technical papers to be prepared and read by different members of the several building trades has been delivered. It is hoped that these papers will add to the interest of the meetings, and be the means of giving the members of the Chapter an insight into the minutiæ of construction, which could not otherwise be learned without the expenditure of much time and labor. It is in the hope that some of the sister Chapters may deem it worthy of imitation that it is mentioned.

As an evidence of the growth of the Chapter, and also as an evidence of its life and vigor, it may be stated that a motion is now before the body relative to the advisability of moving the rooms to a more public and commodious place.

Notwithstanding the reduction of the annual dues to a mere nominal amount, the treasurer has reported that funds of the Chapter are in a good condition, and the organization therefore begins the new year in a sound financial condition, and with some hope of continued and increased usefulness.

T. RONEY WILLIAMSON,
Secretary.

Nov. 15, 1879.

The names and addresses of the members of the Chapter are as follows: —

OFFICERS.

Jas. M. Windrim, *134 South 3d Street* . . .	*President.*
Alonzo B. Jones, *Room 30 Merchants' Exchange* .	*1st Vice-President.*
James P. Sims, *506 Walnut Street*	*2d Vice-President.*
Theophilus P. Chandler, Jr, *226 Walnut Street,*	*Acting Treasurer.*
Edw. Hazelhurst, *508 Walnut Street* . . .	*Secretary.*

MEMBERS.

Thos. U. Walter	*Public Buildings.*
Jno. McArthur	*Public Buildings.*
Jos. M. Wilson	*410 Walnut Street.*
Fred. G. Thorn	*410 Walnut Street.*
John Stewart	*323 Walnut Street.*
Stephen D. Button	*430 Walnut Street.*
John J. Deery	*903 Walnut Street.*
Sam'l Huckle	*508 Walnut Street.*
T. Roney Williamson . . .	*Room 28, Merchants' Exch.*
W. S. Andrews	*1724 North 13th Street.*
Jas. C. Sidney	*204 South 6th Street.*
Wm. S. Hewitt	*310 Chestnut Street.*
Fred Yeager, Junior . . .	*2122 Brandywine Street.*

NON-PROFESSIONAL MEMBERS.

Thos. N. Dixon	*1330 Chestnut Street.*
Henry Petit	*(In Europe.)*
Henry T. Smith	*110 Jacoby Street.*
T. M. Brown	*Walnut and Juniper Streets.*

HONORARY MEMBERS.

Henry C. Gibson. Jno. C. Sims, Jr. Thos. A. Gummey.

The Rhode Island Chapter reported as follows: —

REPORT OF RHODE ISLAND CHAPTER.

Providence, Nov. 17, 1879.

To the American Institute of Architects:

The Rhode Island Chapter respectfully reports:

The Chapter has held eight meetings during the past year, of which one was in Newport and seven in Providence. These meetings have been chiefly occupied in the discussion of matters of local interest, and in the inspection of new buildings of merit recently completed.

One highly interesting paper on the evidences of origin of the "Old Stone Mill" at Newport, as afforded by the construction thereof, has been read by Mr. George C. Mason, Jr., and has subsequently been published in the "Magazine of American History."

From the executors of our late Brother Edwin L. Howland, in accordance with a wish expressed by him before his decease, the Chapter has received the valuable gift of his library of works relating to architecture, comprising some seventy-two (72) volumes. This will form a nucleus for a library which, we hope, may in time grow to respectable proportions.

At the risk of seeming unduly urgent, the Chapter desires to recall to the attention of the convention the proposition made in our report of 1878, in reference to the preparation of an authoritative treatise on the building materials of the United States. We are aware that this is a work of much labor, but it also appears to us to be of great importance to the successful practice of our profession, and we would suggest that each Chapter shall, during the coming season, cause to be prepared a paper on the materials of its own locality, and also that Fellows remote from Chapters be requested by the trustees to contribute in the same manner, the papers to be submitted to the next convention and published in its Proceedings.

We regret that we cannot report any accessions to our numbers during the year just closed, but hope that the new era of prosperity which now seems dawning on the business interests of our country may bring new life into our Chapter and into the Institute.

We have had much discussion upon the condition of the Institute and the connection of the Chapters therewith, and the general opinion of our members is that there is at present too infrequent intercourse between the head and the several branches, as well as between the Chapters themselves. We feel that however well or ill we may do our local work, we should be greatly helped to do it better by the more frequently expressed sympathy, and, as far as possible, the companionship of our Fellows. With our few and scattered Chapters, and but one opportunity for general meeting per annum, it may be difficult to realize our ideal, but we believe that something may be done to cement more closely the bonds of union. The apparently growing indifference to the interests of the Institute, of which we are all conscious, indicates a radical defect in our system, or its administration, which needs a searching diagnosis that the proper remedy may be applied. Looking upon the Institute as the mother of the Chapters, it would be exceedingly pleasant to know more frequently and promptly what is done in her councils. Since the last convention, the only communications received by us have been the semi-annual calls for funds, the notices for elections sent us by the Board of Trustees, and the invitation to the present convention.

As an Institute, we claim "to unite in fellowship the architects of this continent," and ask to be recognized as the representative body of these architects. We must live up to our standard, if we wish to have our claims allowed by the public, or to attract to us those of the profession who are now unattached to our body.

We hope that something may be done at this convention to enlarge our usefulness to the public, and to effect a closer union and interchange of ideas among ourselves. If possible, let the secretary of the Institute visit each of the Chapters, at least once a year, and address the members, the expense to be paid by the Institute. Also let there be more frequent communication between the Chapters, either directly or through the "American Architect," by letters containing items of interest to the profession, or notes of local experiences. It would be well if more papers on technical or historical subjects should be read and *interchanged*, as provided in the By-Laws, and the Institute, through the Board of Trustees, maintain a more intimate and fraternal communion with its scattered Fellows and Associates.

We have spoken plainly, but the subject is of deep interest to the Rhode Island Chapter, as we sincerely desire the growth of the Institute in numbers and in dignity as the representative body of American architects. We most earnestly wish to see it strong and united, — a band of brothers striving to render their art and practice broad and catholic, true to their standard of honorable dealing with their clients and with each other, as so by merit winning the right to speak with authority, and to have its voice respected by the public and obeyed by the profession.

Respectfully submitted for the Rhode Island Chapter,
CHARLES P. HARTSHORN,
Secretary.

OFFICERS ELECTED NOV. 5, 1879.

President	A. C. MORSE, *Providence.*
Vice-President	A. STONE, *Providence.*
Treasurer	GEO. C. MASON, JR., *Newport.*
Secretary	CHAS. P. HARTSHORN, *Providence.*

Executive Committee.

MESSRS. MORSE, HARTSHORN, CARPENTER, AND FLUDDER.

Committee on Admissions.

MESSRS. MORSE, HARTSHORN, CARPENTER, MURPHY, AND NEWTON.

MEMBERS NOV. 5, 1879.

A. C. MORSE	*5 Custom House Street, Providence.*
A. STONE	*65 Westminster Street, Providence.*
C. P. HARTSHORN	*45 Westminster Street, Providence.*
E. I. NICKERSON	*45 Westminster Street, Providence.*
CHAS E. CARPENTER . . .	*65 Westminster Street, Providence.*
GEO. C. MASON, JR. . . .	*Newport.*
GEO. W. CADY	*164 Westminster Street, Providence.*
DUDLEY NEWTON	*Newport.*
JAMES MURPHY	*149 Canal Street, Providence.*
JAMES FLUDDER	*Newport.*

JUNIOR MEMBER.

H. A. NISBET	*65 Westminster Street, Providence.*

The report of the Baltimore Chapter was read by the secretary as follows: —

REPORT OF THE BALTIMORE CHAPTER.

OFFICE OF SECRETARY AND TREASURER,
BALTIMORE, NOV. 1, 1879.

H. M. CONGDON, ESQ.,
Secretary American Institute Architects:

Sir, — I have the honor to submit the annual report of the Baltimore Chapter, A. I. A.

Since the last report nothing of interest has taken place. The hour for meeting has been changed from the evening to afternoon, with a slight improvement in the attendance of members.

We have lost two members, dropped from the rolls for non-payment of dues.

The officers elected for the ensuing year are —

E. G. Lind	*President.*
John Murdoch	*1st Vice-President.*
R. L. Poor	*2d Vice-President.*
John Murdoch	*Secretary.*
J. B. Noel Wyatt	*Treasurer.*
C. E. Cassell and R. Sangmeister	*Executive Committee.*

LIST OF MEMBERS OF BALTIMORE CHAPTER, A. I. A.

FELLOWS.

E. G. Lind	*S. W. cor. Charles and Fayette Sts.*
John Murdoch	*S. E. cor. Charles and Lexington Sts.*

ASSOCIATES.

Geo. Archer	*S. E. cor. Charles and Lexington Sts.*
E. F. Baldwin	*S. W. cor. Charles and Lexington Sts.*
Henry Brauns	*Carrollton Hotel.*
C. E. Cassell	*S W. cor. Charles and Lexington Sts.*
J. E. Sperry	*S. W. cor. Charles and Lexington Sts.*
John Wilkinson	*Baltimore.*
J. A. Wilson	*S. E cor. Charles and Lexington Sts.*
W. T. Wilson	*S. E. cor. Charles and Lexington Sts.*
J. B. Noel Wyatt	*S W. cor. Charles and Lexington Sts.*

ENGINEER MEMBERS.

R. L. Poor	*Gen. Agt. Balt. Steam Packet Co.*
F. H. Smith	*13 German Street.*
S. J. Martinet	*S. W. cor. North and Lexington Sts.*
F. H. Hambleton	*19 German Street.*
R. Sangmeister	*1 Courtlandt Street.*
Wm. Kirkus, Junior	

The report of the Chicago Chapter was as follows: —

REPORT OF THE CHICAGO CHAPTER.

Chicago, Nov. 10, 1879.

To the American Institute of Architects:

The Chicago Chapter herewith submits its report for the year ending Oct. 7, 1879.

The regular semi-monthly meetings have been held during the months set apart in our By-Laws; have been well attended, with no abatement of interest.

Our list of members remains unchanged numerically, there having been the same number of resignations and additions.

With the return of business prosperity we have every reason to expect an increase in both numbers and interest, being encouraged already by several applications for admission.

Very respectfully,

S. A. TREAT, *Secretary.*

CHICAGO, NOV. 25, 1879.

H. M. CONGDON, ESQ., *New York City,*

Secretary of the American Institute of Architects: —

Dear Sir, — Enclosed please find names of members Chicago Chapter, A. I. A.

MEMBERS.

A. ADDISON	*29 Otis Block.*
D. ADLER	*133 La Salle Street.*
A. BAUER	*84 La Salle Street.*
L. D. CLEVELAND	*175 La Salle Street.*
H. L. GAY	*90 La Salle Street.*
S. E. LORING	*Laflin and Fifteenth Streets.*
E. T. MIX	*Milwaukee, Wis.*
S. A. TREAT	*80 Dearborn Street.*
J. R. WILLETT	*85 Dearborn Street.*

Respectfully,

S. A. TREAT.

The report of the Cincinnati Chapter was received subsequently, but is here inserted.

REPORT OF THE CINCINNATI CHAPTER.

The officers of the Chapter are —

JAMES W. MCLAUGHLIN	*President.*
E. ANDERSON	*Vice-President.*
CHARLES CRAPSEY	*Secretary.*
GEORGE W. RAPP	*Treasurer.*

The membership consists of the following gentlemen: —

EDWIN ANDERSON	*154 West Fourth Street.*
HENRY BEVIS	*163 Central Avenue.*

Charles Crapsey . . .	*68 Johnson Building.*
James W. McLaughlin . .	*46 Johnson Building.*
A. C. Nash	*51 West Fourth Street.*
Lewis Picket	*230 Cutter Street*
S. W. Rogers	*Pike's Opera Building.*
James K. Wilson . . .	*Minneapolis, Minn.*

Meetings have not been held with any degree of regularity during the year, but the organization has been maintained, and it is expected that with the revival of business which has come to us, that the meetings of the Chapter will be regularly resumed, and greater interest taken in all things architectural. There has transpired no event of sufficient interest in this city to be brought to the attention of the Institute.

Respectfully submitted.
CHARLES CRAPSEY, *Secretary.*

To H. M. Congdon,
Secretary of the American Institute of Architects, New York City.

No report was received from the Albany Chapter.

In accordance with the programme of the Committee of Arrangements, the reading of papers was next called for, the first in order being by Mr. Frederick Baumann, C. E., of Chicago, on "Foundations in Compressible Soils." Mr. Baumann was unable to be present, and his paper was read by Mr. Stone.

FOUNDATIONS IN COMPRESSIBLE SOILS.

It is indispensable to a Chicago architect to have some knowledge of this kind of foundations; for if he has none, he is, as many have been, incompetent to erect large buildings with any kind of success. Chicago has neither rock, nor gravel, nor dry sand. The surface of the ground is level, the only elevation being a sort of slight dune on the shore of the lake, which rises about five feet above the ground on which the city is built.

The substratum throughout is a substantial bed of hard blue clay, which has a decided dip towards the lake, so that, while ordinarily from two to four feet below the surface, it is beyond ordinary reach on Wabash and Michigan Avenue, and all along the shore of the lake for a space of about 600 to 1,200 feet. Here the soil is a fine sand, pure or mixed with clay. The bed of the river is dug in the clay, and its level is about three feet below the original surface of the ground, which now is from six to eight feet below the level of the present streets.

Original Chicago was erected on this low and wet ground, and to keep the ground below the buildings dry, the principal streets were excavated with a dip toward the river. When, in 1856, the present system of sewers was begun, it became evident that the streets must be raised, to prevent frost from injuring the sewers. This is the origin of the higher grades of streets which were adopted in 1857. Against my urgent solicitations, which were accompanied by a map, the streets in many parts of the town were laid too low, but were raised even with the higher streets, along and near the lake, after the great fire had destroyed the buildings.

With the exception of the old Tremont House, erected 1850–51, the con struction of larger buildings began in 1852, shortly after the time of opening the celebrated Lemont quarries, which afford us a dense limestone in blocks of almost any size and thickness. In 1853 I had charge of erecting the two tallest buildings in the city, both with fronts of the new Lemont stone. Knowing that the so-called "hard pan" (surface stratum of the blue clay) was, after all, but of a yielding nature, I spread sand upon the clay and laid thereon two courses of oak plank. The buildings received no cracks, and were apparently sound, but it did not escape my observation that the corner piers, particularly the lower part of them, had moved out of their vertical line. This circumstance at once changed my views, and when, in the following year, I erected a fine building for the (now defunct) Marine Bank, I constructed its foundations by the rule of independent piers, as I choose to call it. I estimated the weights of the different piers and masses of masonry, and laid the foundations accordingly. The result was satisfactory, so that I had no occasion ever to depart from this principle with a view of arriving at better results.

Having thus given a sort of history of the theory of foundations which prevails in Chicago, and which is treated in my pamphlet, I will proceed to this theory itself.

We all know that a piece of plank of uniform density, floating on the surface of a body of still water, will present a level plane. Now loading this plank with a weight, it will assume a dip, — a departure from the level, — unless this weight is so placed that its centre of gravity will be within a perpendicular line erected upon the centre of gravity of the plank. Shift the weight off this centre, and the plank will assume a greater and greater dip, till at last the load will slide off. We all know this: it is self-evident, and needs no further proof.

Now let us assume, in the place of this water, any building ground, be it mire, quicksand, clay, loam, sand, gravel, rock. Let us further assume in the place of this plank and the weight thereon, the base of a foundation with the masonry upon it, and the question is whether the case has become a different one. There is, as everybody will perceive, but one answer to this question. The case is precisely the same, for we know that matter, of whatsoever kind or nature, is compressible. The hardest rock is, in fact, compressed by the slightest weight, though in a degree infinitesimally small. But in practice, particularly in building practice, we have no dealings with magnitudes of infinitesimal character. We deal with magnitudes which we can measure with very common instruments, such as rules, plumb-lines, and spirit-levels. What, therefore, we pronounce plumb, level, and of this or that dimension, is really only approximately so. We pronounce a building mechanically perfect in case its horizontal lines are nearly level, and its vertical lines nearly plumb. In this condition, a building may justly be pronounced mechanically perfect, for it presents this appearance to our senses.

Considering in this practical light the strata of soil upon which we have to erect our buildings, we pronounce rock (of sufficient density and thickness) incompressible, gravel almost incompressible, and dry sand very slightly compressible. Any ground of this sort may be treated at random without visible hurt to the structure thereon erected. We may cover it with a uniform stratum of concrete, put thereon the bases, without much calculating, and the result will be a good one. Thus it occurs that the plain laws of nature may be left unattended to and unobserved without harm.

The case, however, is different when buildings are to be erected upon loam, clay, or mire. Here the law of nature makes itself prominent. The weights must be correctly estimated and foundations made in proportion. More than this, the centre of gravity of the pier estimated must be put in perpendicular line over the centre of gravity of the foundation. Concrete can here not be put over the ground at random, though it might be put advantageously upon proper places. The softer the ground the more correctly must be made the estimation and distribution of weights. The same is the case with buildings whose foundations are but narrow in proportion to the weights thereon placed.

At first sight it would appear that the width of foundations is of little account so long as the distributing of weights is very correctly done. It would seem that, then, the only effect of narrower bases would be a comparatively deeper sinking of the structure.

This, however, is not, and cannot be, precisely the case. When we go beyond a proper measure in this direction, we will not see our building settle with exact uniformity. There are three reasons for this fact:—

First. It is practically impossible to make an exact distribution of parts and estimate their weights with sufficient accuracy. Many buildings are very complicated, and what is worse with them is that many, oftentimes very heavy parts of the structure do not enter during the process of erecting, but are applied afterwards. Interior columns, for instance, might receive but one fourth of their load during construction, and three fourths after the roof is finished.

Second. It is not correct to assume that ground of uniform appearance is precisely of uniform density, nor is it safe in extreme cases to assume a uniform appearance. We are dealing here, in the best cases, with an approximation, and where we meet with palpable diversity in this direction, we shall find ourselves under necessity to let the differences of density enter into our calculations. What then we shall arrive at will, in the happiest cases, be but an approximation of a nature somewhat vague. Such exceptional cases, however, are not of frequent occurrence; there are none in Chicago.

Third. Compressible soil is not precisely compressed in proportion to the weight thereupon placed, nor is it certain that different areas of the same soil suffer exactly the same compression, though proportionately loaded.

If, for instance, the ultimate compression of ground under a base four feet square is 1½ inches when permanently loaded by a weight of 24 tons, it does not follow that a weight of 48 tons would cause a depression of 3, and 72 tons one of 4½ inches. The facts have here been, as I have had the opportunity of observing, that greater weights cause a proportionately greater depression. A 4 x 4 foot stone, loaded with what I estimated at about 64 tons, went down about 4 inches during the construction of the building; at the time of occupation the parts were made level by placing an iron block of 4 inches thickness under the column; but some two years afterwards the point showed again a depression of about 4 inches. Again the level lines were restored. Yet when I last saw the place a few months before the great fire, and probably seven years after the construction of the building, it appeared to me again 4 inches depressed. Many other similar cases I could mention were it necessary.

It would, in the same way, appear to me, that areas of great difference in size are not compressed exactly as the ratio of weights thereon placed. A base 4 x 4 feet, loaded with a weight of twenty-four tons, will receive an ultimate depression of one and one half inches, when properly placed upon our "hard-pan," but it would always seem to me that bases of smaller area were more, those of larger areas less, depressed. I am not aware that this point has ever been brought to a proper test, and therefore abstain from being very positive on it After the great fire I undertook to urge upon our Board of Public Works the importance of making proper tests on all the various points upon the Court House Square, but without success.

These foregoing three reasons will suffice to teach us, if our good sense did not, that under any circumstances it is best to allow the smallest possible weight of superstructure to the unit measure of base. Thus, if it were possible in a case to load the square foot of base with only a quarter of a ton weight of superstructure, there would be a very slight depression of the ground, such as would hardly be at all noticed. In practice, however, it rarely occurs that such broad distribution of bases is possible, nor would it be necessary to incur the larger expense therewith connected. It is practicable to arrive at a very perfect construction with a ton of superstructure upon a square foot of base, and this measure is now pretty generally taken. We have become a little more lavish in this respect, and dislike to take one and one half tons, when the extent of ground permits us as well to take only one ton, by making bases fifty per cent broader. Still, if it must be, we take the one and one half tons and even more. The city part of our new Court House is, if my information is correct, calculated for two and one half tons upon the square foot of base. The result will show how proper or improper this is.

I hold to the belief that here in Chicago, where the ground is of so limited density, it is not good practice to construct buildings so massive that their foundations cannot be spread out enough to limit the load to one and one half tons upon the square foot. I believe it to be better, if the height cannot be kept down, to construct lighter walls, purposely so light that the prescribed limit of weight will be kept. A building with dropping key-stones, broken lintels, cracked walls, is, after all, but little better than a wreck, and no precaution should be spared to avoid such occurrences.

The United States Custom House, so extensively mentioned in my pamphlet, is now receiving its plastering. Its foundations are concrete, and dimension stone thereon. The first warning as to its safety was given three years ago by the winter's frost, which had been carelessly allowed to reach the ground below the concrete. The walls were subsequently constructed lighter. yet the results of constructing its foundations, contrary to the common-sense rules laid down in this paper, are very plain to the passer-by; key-stones have dropped, lintels and arches are broken, corners are deviating from the plumb lines, all of which defects would not be there had the concrete been omitted in its character of an "equalizer," and foundations been laid strictly in accordance with the common-sense rules laid down in my pamphlet, and here briefly and independently repeated.

Respectfully submitted.

FREDERICK BAUMANN.

The paper next announced in the programme was by Prof. Russell Sturgis, of the college of the city of New York. Prof. Sturgis being called upon, said that his remarks were not in manuscript, but he was ready to give some verbal information about the subject assigned to him, the architectural course recently entered upon at the college.

That course, said he, was not a professional one, designed for graduates in preparation for active life, but was one of the elective or optional studies of the undergraduate curriculum.

In their choice of studies some students tended strongly toward practical instruction, preferring modern to ancient languages, and science to philosophy, while those who elected Greek and Latin were less inclined to these subjects. Those who followed his course were mostly from among the former class, and he therefore endeavored to meet their expectations by making his lectures as practical as possible. At the same time he could not lose sight of the distinction between the instruction proper to a professional school and that suitable to an undergraduate course, and equally with practical instruction he consulted the needs of their general training.

In his teaching he thought it a sound principle to give practice first and theory afterwards. It was the best modern rule with regard to languages, science, and art, that something of practice should be first learned by the rule of thumb, and afterwards information should be given as to the theory upon which the practice is based.

In carrying out this plan, he divided the two years which constituted the course, the Junior year being chiefly spent by his pupils in drawing, while the Senior year was devoted principally to lectures.

In the Junior year, the first thing was to teach the simplest kind of architectural drawing. Calling the attention of the class to the peculiarities of that sort of drawing, by which architectural forms are put into shape for builders, he would make upon the blackboard a large perspective sketch of some part of a building; for instance, a window with a lintel, and stone jamb corbels supporting the ends of the lintel. The dimensions of the various parts are marked on the sketch. Then the students were required to render the window shown in the perspective sketch in plan, elevation, and section. He then impressed it upon their minds, that these geometrical drawings would be interpreted alike in all parts of the world, and mechanics of all nations would construct from these plans, elevations, and sections, windows which would be identically the same. He tried to make his subjects seem real to the students. The corbels, for instance, under the ends of the lintel, he would assert to be in this case necessary, not simply ornamental features; the lintel being too short to span the opening properly without them. He would account for the shortness of the lintel by supposing that the quarry would not furnish stones of greater size If the students objected that any needed material could be obtained in New York, he would explain that the building in question was to be erected in New Jersey, where the only stone to be used must be that taken from the cellar under it.

Perhaps the next subject would be the arch, and the students would be shown how, by making the opening still wider, it would be necessary to abandon the lintel altogether, and resort to arch construction of some kind. This would introduce a discussion on the different species of arches, and the distinction between the mathematical or engineer's definition of the arch, as any means of spanning an opening by resolving the vertical pressure over it into a horizontal pressure at the crown, and that of the architect, who takes account of many others besides the mechanical considerations.

The form of curve was, from the architect's point of view, an important matter, and he had had charts prepared, showing all the forms of arch which had ever been used, with reference to the building from which each example was drawn, and dwelling upon the constructional character of each.

Technical terms he took pains to insist upon; to understand the whole scope and bearing of the common techinical terms used in building was to understand a great deal about building itself. To know all that is implied in the words "archivolt," "entablature;" "architrave," and the like, was to understand a great deal about the edifices in which those members are found, and the styles of architecture which chiefly employ them.

Other arts than architecture were discussed during the Junior year, merely as they are used to assist in architecture; that is, in the decoration of buildings. The past history of architecture was the centre about which these allied arts were clustered; all the arts in the great periods taking their origin in the desire to decorate public and religious buildings. Even the designs for pottery and jewelry were different from what they would have been had it not been for the architectural art of the same epoch.

During the Junior year, however, he had little time to devote to the study of any arts, except those immediately connected with building. Painting could only be referred to where it formed the frescoed decoration of edifices; sculpture, as used for their ornamentation; and the great body of subsidiary arts could only receive brief mention. In the Senior year it was different. The students having become more familiar with the position from which he viewed the arts, could understand and benefit by lectures more theoretical in character and embracing a wider range. Beginning, therefore, in the Senior year with Egypt, he endeavored to illustrate the principal epochs of art, those whose successive developments led to the arts of Europe from the thirteenth to the sixteenth centuries. Isolated forms, even so important as those of Assyria and Persepolis, he passed over with brief mention, wishing chiefly to insist upon the natural and inevitable sequence of the fine arts of Greece from those of Egypt, of Rome from Greece, and so on.

The great difficulty was to make the students understand what was meant in speaking about qualities and merits in the arts of the past, which are almost unknown in those of our day and country, and of which no remains, at least in architecture, exist here. He supplied this need, as far as he could, by collecting all the examples within his reach, of the minor arts. The college possesses a valuable collection of casts from Greek and Græco-Roman sculpture, and he was himself able to gather, for his lectures on that special period, fifty or more Grecian and Roman vases and specimens of pottery. Of these he caused his students to make drawings, at least one of each particular form, noting wherein one form differed from another, how a lecythus differed from an œnochoë, and how the various forms of each were distinguished from one another.

In this way the second year was spent in lectures upon the history and theory of art. One observation which he found interesting was the difference in point of view from which each epoch regarded art. To those who were sufficiently advanced to comprehend it, this discussion was more interesting than that of the purely technical characteristics of fine art.

He had been often asked whether there was any difference to be observed between the rich and the poor students in their apprehension of the subjects upon which he taught. So far as his observation went, there was no difference; the poor were as susceptible of cultivation as the rich. There was, however, an interesting variation in the reception of such matters by various nationalities. He had, for instance, several Hebrews in his classes, and found them uniformly most interested in the arts of the most ancient times. They had little taste for the early renaissance; their preference was for the tranquillity and restraint of classicism. In color, also, they found more pleasure in Egyptian and Oriental decoration than in that of mediæval or modern Europe.

The thanks of the convention were voted to Prof. Sturgis.

Mr. Lewis W. Leeds, of Philadelphia, then read the following paper on the "Proportion of Inlet and Outlet Shafts in Ventilation."

THE PROPORTION OF INLET AND OUTLET SHAFTS IN VENTILATION.

It might surprise some of you if I were to say that in the best ventilated buildings we provide *no* special inlet openings for the fresh air; and yet this statement would be comparatively true, as in a large number of the most satisfactorily warmed and ventilated buildings erected within the last few years, we have not put in a single register, or built flues expressly for that purpose. Now this change of practice is by no means the result of carelessness, or for the sake of economy, or because we know no better, for no one has urged more persistently than myself in years past the necessity for a large and special supply of fresh air to every inhabited room.

In former years I provided supply registers one third larger than the exhaust register for every room, and I insisted that both must be very large; but the frequent annoyance from unpleasant draughts was one of the difficulties constantly encountered. Some thirty years ago a gentleman in Philadelphia asked me to warm and ventilate his house in the very best manner. It was one of those rare occasions where the limit of price was not fixed; full liberty was given to do as we pleased. It was an ordinary city dwelling, first-class for Philadelphia, but not as large as the present New York house.

But they had a good-sized yard which at that time pleased me very much, as I thought we should need most of it for building our fresh air shafts and exhaust shafts. The fresh-air shaft which we built in the yard, and carried clear above the tops of the four-story houses, was three feet six inches in the clear, giving an area of a little over twelve square feet. The exhaust shaft built close by and carried to the tops of the houses was three feet square, giving nine square feet of area.

Now the warming of that great volume of fresh air was the next important problem to solve. For this purpose we took possession of that amiable man's cellar for about six months and filled it with all sorts of contrivances for warming, tempering, moistening, and cooling the air, and when we were done, we thought we had accomplished a very wonderful thing, for which all mankind would be under everlasting obligations to us. We thought it very necessary to secure these valuable ideas by patents in America, England, and France. Fortunately the proprietor was sufficiently well pleased to pay the bills cheerfully. But the ladies were not sufficiently interested in mechanics and sanitary science to appreciate these splendid arrangements. I found they still preferred the old-fashioned open fire in the library and would not say that they felt much better and more comfortable in the rooms heated and ventilated so splendidly by this new hot-water apparatus. This annoyed me.

Not discouraged, however, at this, I persevered and followed a similar course for years, filling the cellars of buildings that I had charge of with air-warming contrivances, and the walls or yards with flues. I then attributed that universal complaint against hot air to ignorance. I thought it was because they knew no better. But the continued protest of all well-educated and intelligent people against the warmed air from the best heating apparatus that I could make so discouraged me, that I was finally compelled to consider the reason for this universal complaint. Careful and impartial observation convinced me that I felt better myself in a room warmed by an open wood fire, than in any room warmed by the most elaborate hot-water air-warming apparatus that I could devise. Meeting soon after with a record of experiments, tried for the purpose of ascertaining the effect upon the blood of inhaling air at different temperatures, I was surprised to notice the wonderful difference in effect between the inhalation of cold and warm air. It was stated that there was double the amount of carbonic acid exhaled when breathing air near zero, that there was when inhaling air near the temperature of the blood. This, to me, was a wonderful revelation It began to dawn on me why it was that I could not make people like that lovely warm air from my splendid patent hot-water apparatus. The air from that was generally about 100°. It was just lukewarm; it was neither hot nor cold; it had very much the sickening, debilitating effect of drinking lukewarm water

This was a sad discovery to me. It vitiated all our valuable patents, and destroyed all or much of the business credit I had been working so hard to gain for fifteen years. Tyndall's splendid experiments tried about that time, showing that radiant heat passed through pure air without warming it, greatly interested me. This indicated nature's method for distributing warmth by another process than that of warming the air. It explained clearly how the body might be abundantly warmed by direct radiation, and at the same time be surrounded by cold air, which gives that invigorating effect in the external atmosphere of a clear, bright, sunny morning. It was very clear that this was the principle that gave the charm to the open fire. But the open fire had the great disadvantage of roasting one side of the body while the other was freezing. It also created a cold draught on the floor. But it remains even to-day, as an undisputed fact which no one attempts to deny, that the open fire is the most wholesome and invigorating system of warming that we can have.

Now taking this as a basis, we want to see how we can supplement or substitute something that shall have nearly the effect without the disadvantages and inconveniences experienced in the exclusive use of the open fire.

Burning coal has a temperature estimated at two thousand degrees or upwards. This high temperature has undoubtedly a very stimulating effect upon the body, and is exceedingly valuable for that purpose. In this respect we cannot substitute a lower temperature with the same advantage. But a well-diffused warmth over a large room is also a great advantage which the open fire does not give. This diffusion of the warmth is more readily obtained by steam than by any other agent with which we are at present familiar. Circulating hot water has the advantage of giving a lower temperature for mild weather, but the greater sluggishness of its circulation is a disadvantage that more than counterbalances any advantage gained by its milder temperature.

What I now consider the perfection of warming (and its control of the ventilation I will speak of presently) is the mild, diffused warmth of the materials composing the sides and floor of the room. The temperature of these should be just sufficiently in excess of that required in the room to counteract the cooling effect of the external atmosphere upon the walls and windows. A temperature of ninety or one hundred degrees is probably not too much for the floor, as this would be so nearly the temperature of the blood it would scarcely feel warm or cold. A temperature slightly in excess of this is desirable for the walls. With this positive warmth of the materials of the room, the air circulating around the room may be much cooler. With the floors and walls at the temperature above mentioned there may be a free circulation of the air at a temperature of fifty-five degrees without creating unpleasant draughts

Now we come to the effect of this heating by radiation upon the relative size of the inlet openings and outlet openings for ventilation. The warmth not being contained in the air, but retained in the solid materials of the room, is not carried about with the circulating air. It warms the persons in the room in a steady, uniform way by direct radiation, which is not influenced by the whirling and circulating of the air. Three fourths of that whole vexing question of ventilation is solved by this method of distributing the warmth. No amount of nice adjustment of the relative size of inlet openings and outlet openings can ever make a room satisfactorily warmed and ventilated, while the warmth is produced by overheating the air It is unnatural, and physiologically incorrect, and we should have to get up a class of beings to order, and made on an entirely new principle, before we could get them to enjoy a room with cold floors and cold walls, and filled with hot air. They should never be allowed to go out of doors into the natural atmosphere, as this would vitiate their taste. They should have suction feet like the flies, so that they could walk on the ceiling, as there is where the heat accumulates in our furnace-heated rooms, and we ought always to keep our feet hotter than our heads.

But in heating by radiation, we can more nearly imitate the natural conditions with which we are surrounded, and the present race of human beings appears to be constructed upon principles to harmonize with those universal external conditions. Although heating by radiation greatly simplifies the ventilation and renders it possible to produce satisfactory results, which warming by hot air never can, there still remains much to exercise the ingenuity upon in adjusting the heating apparatus so as to give the most uniform temperature over the whole room, and to secure at all times the abundant supply of fresh air desired without draughts

Where the floor is ninety-eight degrees and the air above it is fifty-five degrees, this excessive warmth of the floor creates the most perfect agitation of the air over its whole surface by the air which comes in immediate contact with the floor being warmed and rising, and the colder air falling to take its place. This is nature's great method of ventilation. The earth is warmed by the direct radiation from the sun and warms the air in immediate contact, creating the splendid natural ventilation which we so much enjoy. No stagnation of the air can ever occur under these conditions. By the system of diffused radiation much less inconvenience is experienced by the natural opening and closing of windows and doors, and a general circulation is secured in this way. With warmed floors and direct radiation openings may always be provided at the ceilings for the escape of the vitiated air. These may be very large, and allow of the rapid escape of the vitiated air, because the heat being principally confined in the solid objects of the room is not carried off by this escaping foul air.

An excellent arrangement is to place the radiators under the windows. This arrangement has many important advantages; it places the excess of heat immediately beneath the excess of cold, as the window is usually the coldest part of the room; again, it gives the simplest and most natural opportunity for supplying the fresh air. Great care must be used, however, in preventing the fresh air coming in contact with and being warmed by the radiator before it is inhaled by the living being. We have experimented much upon this. We at first brought the air in contact with the radiator before introducing it into the room; but this still supplied warm air for breathing, and we found it very objectionable. We are now very careful to deflect the inflowing fresh air upwards and throw it first to the ceiling and allow it to fall gently and well diffused over the room. By this method the largest possible supply of fresh air may be introduced with the smallest possible inconvenience. There are other important advantages in this position for the radiator. If neatly fitted and properly adjusted it takes up the least valuable space in the room. It also avoids soiling the walls by the increased circulation of the air, which is so disagreeable where the radiator or register is placed against the solid wall.

It is in this connection that we find the best answer to your question as to the relative size of the inlet openings and outlet openings for ventilation. No fixed and definite supply of fresh air or fixed inlet for the admission of the fresh air can be made satisfactory under all the varying conditions and requirements of the human system and the great range of temperature and ever-varying force and direction of the wind.

An easily regulated and nicely adjusted supply is absolutely essential, and what can be more natural or simple for this purpose than the opening and closing of the window? In addition to this the halls should always be pure, and well supplied with pure, fresh air. And these then become the great internal fresh-air supply shafts, and the hall doors or the transoms over them become other fresh-air supplies to the rooms. There are still other cases in large halls, where an additional supply of fresh air from the ceiling may become desirable, but never from the floor. In all these cases a simple method of adjustment and regulation is absolutely necessary. No engineer can give definite proportions for the sizes of the inlet and outlet of this vital element in a building yet to be created, any more than a parent can fix the daily food and drink of his unborn child from infancy to old age. There are, of course, an infinite variety of details which may profitably employ the architect and engineer of ventilating and warming. But the one grand overruling subject which must first be definitely settled, and should be settled intelligently, is, Will the American architect be justified in preparing his plans for, and continuing to recommend that system of hot-air currents which has been so thoroughly tried and so fully and universally condemned?

I say the *American* architect, because it is the architects of America who to-day are initiating the greatest reforms, and who will soon be admitted, the world over, to be the leaders in the introduction of all the valuable contrivances for securing the greatest health and comfort of the inmates of our buildings.

Through the carelessness, or the ignorance, or whatever else we must call it, of the architect, millions of dollars are being spent in this country annually upon these air-warming contrivances; worse than wasted, because they sap the very foundation of the health of our people.

Yet we still see this vicious system persisted in. Our court-houses, our asylums, our capitol buildings, club-houses, and such buildings as have large sums of money to spend for this laudable purpose, seem to be the easy prey for ignorant and ambitious engineers, who make a fascinating display of their magnificent machinery put to the base use of attempting to counteract the great natural laws of creation. A report to the English House of Parliament, by a committee appointed to examine and report upon the ventilation and warming of the public buildings of the kingdom, after a full examination of these magnificent schemes for the forced supply of the fresh and warmed air, admits that they are entire failures, and after excusing the expenditure of enormous sums upon the ground of experimenting in a laudable cause, says that every additional pound spent in that direction is an unjustifiable waste of money.

Almost every committee appointed to examine the large institutions of this country, where machinery is used for forcing in warmed air, reports that nine tenths of such machines have been abandoned, or are standing idle. And now that modern investigation has proven so clearly that the whole system of air warming is radically wrong, it does seem quite time that the American Institute of Architects should make their emphatic protest against its continued use.

Last week, being in Washington, I stepped into the House of Representatives for a few moments, and found the usual annual remodelling of the heating apparatus going on. After spending some $30,000 last year on this work, they found it just as unsatisfactory as ever. They still persisted in driving in the detestable warm air. And now what are they doing? Simply tearing up the whole place, and making new registers double the size, to get twice as much of the miserable stuff. They seem to think the relative proportion of the inlet registers and outlet registers needs changing, and they have been doing this almost annually for the last twenty years, and with the same uniform unsatisfactory results; and they may go on changing the relative proportions in all the infinite variety that could be figured out by the most learned mathematicians from now till doomsday, and the result would still be unsatisfactory, unless they changed the principle of warming. They have, to be sure, introduced two large mantel-pieces with two very small fireplaces. This, of course, should be hailed with joy as the dawn of a little common-sense; but the long delay of allowing the full daylight of common-sense, at least in this particular, to enter that hall, seems to me at least unfortunate. They have not as yet arrived at any more satisfactory results in Europe than we have here. In England, they have used the Englishman's privilege of grumbling and finding fault with almost everything that has been done in this line, but they have not yet found any substitute to use in their large buildings that has proven satisfactory. In the Houses of Parliament they have brought the air-warming principle to as great perfection as it is capable of, and with the amount of radiation introduced in various portions of the building, grumbling is reduced to moderate proportions. The great ventilating shafts do excellent work, but their fans stand idle. All the other methods of warming having proved so unsatisfactory to the English, they still cling to the open fire. This is almost universally used. The new building for the British Museum is heated by immense stacks of hot-water pipes in the cellar, the water being heated by steam. The South Kensington Museum is heated by stacks of pipes under the passageways, with open gratings over them. Many of the large buildings in London and through England are heated in this way. There is much objection to it, however.

The whole effect of the radiation in the room is lost by the heating surface being placed below the floor in such a manner that the whole of the radiation is confined to a very narrow channel, and thrown directly towards the ceiling instead of towards the floor. The channels are great dirt collectors; the heating surfaces, being generally well coated with dust, give off unpleasant odors when heated.

In France they have tried some very elaborate experiments, but mostly with air-warming arrangements. At the Grand Opera House, very liberal arrangements were made for the heating and ventilation, the air warmed in the cellar by upright drums filled with hot water heated by steam.

The supply of fresh air and exhaust of foul are very liberal, but the entire absence of direct radiation causes intolerable draughts when the whole force of the ventilating apparatus is applied; consequently these arrangements are practically closed, and I never met an American who could remain during the whole performance with any comfort.

They have also given much attention to the ventilation and warming of the hospitals. The new hospital, Hôtel-Dieu, has a very elaborate apparatus for forcing in the warmed air. The theory of this forced ventilation is, that they are independent of the external atmosphere, that the internal pressure is sufficient to create an outward pressure at all times. But the experiments we tried there with the fans in full blast fully illustrated the fallacy of this theory. By opening any of the windows, either in the windward or on the leeward side, the air rushed in with great force, clearly showing that the force of the fans did not overcome the pressure of the external atmosphere. The practical difficulty thus created is, that instead of working in harmony with the natural movements of the air, this forced ventilation opposes it, and tends to create stagnation, or, as sometimes may occur where great force is used in driving in the air without sufficient outlet, a very oppressive condition of the atmosphere.

These annoyances vanish wonderfully when we learn to separate the heating entirely from the ventilation. Attend carefully to the proper placing and distribution of the heat. We can place some dependence upon that as a staid, controllable thing; but the air we had better let whirl and gambol about to its heart's content, *for that is just the nature of the thing.*

It affords me peculiar gratification to be able to present these views so fully before this society, for I consider there is no other body of men in the world that can exercise a more direct influence in bringing about the true and genuine reforms needed in this branch of building. There has been much discussion upon this subject of late years, and the intimate connection it has with our health, and with our daily and hourly comfort, and in fact with our very existence, warrants this attention. I know that men of experience and intelligence differ with me in some of the views expressed here, and many of you will doubtless hesitate to accept some of the ideas advanced until you examine them more fully. But I feel so fully convinced in my own mind of their correctness, that I take the liberty of presenting just what I consider to be the exact truth and the facts, although they may differ from our present practice and our preconceived notions.

I hope that with the brilliant future that seems so cheerfully dawning on this land, we may soon learn to build for ourselves dwellings that shall shelter us from the inclemency of the weather, and counteract the ever-changing temperature, and at the same time preserve all the purity, freshness, and invigorating effect of the external atmosphere.

Professor C. E. Norton, of Harvard University, read the following paper on "Painting and Sculpture in their Relation to Architecture": —

PAINTING AND SCULPTURE

IN THEIR RELATION TO ARCHITECTURE, AS ILLUSTRATED BY THE PRACTICE OF THE ITALIAN ARTISTS OF THE THIRTEENTH AND FOURTEENTH CENTURIES.

In the famous letter in which Leonardo da Vinci offered his services to Ludovico il Moro, the ruler of Milan, after enumerating the resources of his universal genius in the arts of war, he adds: "In time of peace I trust to give complete satisfaction, in comparison with any other man, in architecture, in the composition of both public and private buildings. Further I will execute sculpture in marble, in bronze, and in clay; likewise in painting, I will do whatever can be done, equal to any other man, be he who he may." There was no extravagance in Leonardo's claim to equal ability of performance in the three arts, nor is it likely that it would have struck his contemporaries as an unusual boast. The device adopted by Michelangelo was of three circles interlaced in such wise that the circumference of each passed through the centre of the other two, by which was signified the mutual dependence and inextricable relation of the three great arts of design; and when his funeral obsequies were celebrated, in his own church of San Lorenzo, with a stately and splendid pomp to which architecture, painting, and sculpture contributed in ardent rivalry, the three circles of his device were changed upon the decorations to three crowns, with the motto, *Tergeminis tollit honoribus.* The indissoluble union of the arts in the production of the highest achievements of each was not a mere doctrine of the Italian schools of art, but an article of faith consecrated by long tradition, and approved by centuries of experience.

The contrast to this faith and practice afforded by modern modes of thought concerning the arts, and by contemporary production in Europe and in America, is striking. The separation of the arts is one of the most prominent facts in their history during the last two or three hundred years; never, perhaps, was the divorce more complete than at the present day. The architect contents himself with being simply the designer and constructor of buildings; the sculptor gives little study to the principles of architecture or of painting; the painter seldom uses other instruments or materials than the pencil and the brush and the colors of his palette. or if, as in some rare instances, — for example, that of Sir Frederick Leighton, — he gives himself also to modelling, the applause with which a partial success is greeted indicates how far the modern standard of requirement of the artist has varied, has declined, since the days of the masters of the middle ages and the renaissance.

No one can give serious thought to the nature and functions of the three arts as the modes of expression of individual, communal, or national sentiments, without recognizing the fact that this change of feeling in regard to their mutual dependence, this virtual separation of them, this neglect of union of their forces in conjunct products, is one of the chief reasons of their comparative feebleness at the present time, — of the small part that they hold in the real interest of the community, — of their failure to give due expression to its higher spirit, — of their loss of power, in fine, as instruments of culture and of civilization. The change is due to many causes, partly having their source in the general conditions of society, partly also in conditions within the special domain of the arts themselves, consequent upon received methods of discipline and practice, and upon habits of life and thought among artists. The detailed investigation of these causes would be a work of interest, especially in connection with the consideration of the remedies for a state so deplorable as that in which these arts for the most part exist to-day. But the subject is one that could be treated satisfactorily only at a length unsuited to this occasion, and with resources of learning, observation, and reflection such as few men possess. It may, however, not be without interest, leaving aside the graver question of cause and remedy, to go back to the time when in Italy the arts were working in unison for the production of some of the noblest and most permanently precious achievements of genius, and to endeavor to draw from these works some of the instruction or suggestion they may have for ourselves.

The brilliant revival of the arts of sculpture and painting in Tuscany, during the last half of the thirteenth century, was based on the already developed style of architecture of that region, which, more than any other portion of Italy, had inherited from ancient times the love and the practice of artistic expression. One after another of the Tuscan cities, as it grew strong and became conscious of its permanent character as a civic community, had built church and cathedral, following the lead of Pisa, in a style peculiarly its own in which classic reminiscences and traditions served as plastic materials in the hands of a new race of imaginative builders. Their science of construction was often defective. but their designs were distinguished by fair and often exquisite proportions, by dignity of line, by skilled apportionment of parts, by refinement of detail, and by a system of ornamentation in which color and the play of light and shade through the use of column and arcade, were the chief elements.

The color was mainly that of mosaic, of glass, or of marble. The designs of the mosaics, and of the bas-reliefs in bronze or marble, though stiff and mechanical. still often displayed the traditional quality of the Etruscan genius. Neither sculpture nor painting proper was employed in any considerable degree in the representation of figures or of scenes. Their powers were undeveloped, and the part of these arts in the production of conjoint effects with architecture was as yet subordinate.

Greece was once again, as so often in every field of intelligence and of imagination, to afford the light that should kindle a new flame. The vase and the sarcophagi, brought from some unknown site of ancient art to adorn the outside of the Pisan Duomo, and the cloister of her Campo Santo, were the teachers of Nicolas the Pisan. They sent him to nature as the source of all fine art. They led him out from the close confinement of traditional convention, and from the darkness of ignorance, into the open world and the clear light. They taught him the true methods of treatment and of execution.

Thus schooled and inspired he became the leader of Italy, and in full sympathy with the passionate, emotional spirit of his times, he gave expression to it in works that remain masterpieces of direct, powerful, and vivid expression. Now there is nothing more noticeable in all his work, and in that of his son and his other immediate disciples, than that it is not intended to have independent existence, but is intimately associated with architecture and conditioned by architectural considerations. His pulpits for Pisa and Siena, supreme pieces of art as they are, were not only intended to be associated with the buildings in which they stand, but were themselves architectural compositions of elaborate and beautiful design. He was architect, sculptor, engineer, according to need. His son Giovanni carried on the tradition, and, becoming the most famous sculptor of his time, was so excellent an architect that the Sienese made him for a series of years the chief master of the works on the Duomo which they were building, with desire that it should be the most splendid church in Tuscany. From this time forward, for nearly three hundred years, the master architect was master sculptor also.

A great change took place in the architectural taste of a large part of Italy during the thirteenth century, the century of Nicolas and John the Pisans, which is shown clearly in their works in the adoption of the forms of Northern Gothic art, especially of its most fanciful and decorative elements, such as its pinnacles and its tracery. This intrusion of Gothic forms profoundly, and by no means advantageously, modified the character of the beautiful and more simple native style There was an essential incongruity, nay, even antagonism, in the fundamental principles of the Gothic and of the Tuscan styles. and the Tuscan builders never succeeded in fully mastering the constructive principles of the foreign school. But such elements of it as they adopted led to the production of buildings marvellous in picturesque variety of composition and adornment, however destitute of organic unity, and in which the three great fine arts were brought into even closer union than before. The façades of the churches erected in this composite style were the special fields for their joint work, and at Siena and at Orvieto may be seen the splendid result of their common labors. The architectural design is dependent upon mosaic and sculpture. The color and the carving are not merely adjuncts to the architecture, but essential parts of it. Each gives and receives added effect. There is no rivalry, no division between them; they are united as one art.

But it was not on the exterior of the churches that the mutual dependence of the arts was chiefly manifested. It was within, where the walls were covered with paintings, and where the construction was apparently often determined by the desire of the architect to secure the broad surfaces which were to afford the field for the painter's work. The tendency of the proper Italian style to give but small space to window openings was favorable to the expanses which a pictorial treatment of the interior required. The same tendency affected the designs of Gothic builders. The first great Gothic church in Italy, that of St. Francis, at Assisi, built by a German architect in the second quarter of the thirteenth century, exhibits this character in the fullest degree. There is no building in Italy more precious in its associations, more important in the history of art, more magnificent in the scheme of its pictorial decoration. It has never been properly illustrated, and I would venture to suggest that an American student of architecture in Italy could do no worthier service to his profession than to make a complete historic and artistic study of this church, with the abundant illustration which its architecture and its painting alike deserve. It would, indeed, be a long labor, but a labor full of instruction and of delight to one who should undertake it in the right spirit, and with the required preparation.

If we enter the upper church we find its walls and its ceiling covered with paintings, which still, in spite of the injury of six hundred years, give to it an almost unexampled richness of effect. Although the scheme of pictorial decoration embraces two great series of parallel illustrations of the Scriptures of the Old and the New Testament, and a third series of twenty-eight subjects from the life of St. Francis, upon the walls, as well as a multitude of separate but associated figures upon the vaulted ceiling, and a lavish abundance of ornament and tracery and foliage and stars of gold in the minor spaces and divisions, yet it is plain that, while many hands have been employed upon the vast work, the whole has been treated as a single, composite, carefully considered piece of color decoration. Many of the designs exhibit the rude drawing, the imperfect technical skill, the lack of knowledge of the painters; but among the painters was Cimabue, who, whether inspired by the powerful example of Nicola, or catching, like him, his inspiration from the works of ancient Greece, was beginning to open to painting the paths of nature, and was entering along the way on which his pupil Giotto was to advance with the fast and firm step of genius, in the development of the resources of the art. "This work," says Vasari, "truly most grand and rich, and most excellently carried out, must, in my judgment, have astonished the world in those days, especially because painting had been for so long a time in such complete blindness; and to me, who saw it again in 1563, it seemed most beautiful, as I thought how Cimabue in such darkness could have seen so great a light." It is to be observed, however, that this splendid scheme of decoration is one not perfectly adapted to enhance the purely architectural character of the upper church, and I cannot but believe that the want of perfect harmony between the two arts, which is visible here, was due to the discord in artistic feeling and in architectural conception between the German designer of the building and the Italian painters. The painters did not completely succeed in harmonizing their work with the organic composition of the structure. In the framing of their designs they have broken the vertical lines of Gothic construction with the horizontal lines of the classic architrave, and have brought the forms of classic columns into contrast with those of the clustered piers.

The lower church, which is of the nature of a crypt, built above the hollow in the rock, in which the body of the saint reposes, is not of less interest than the upper, in the character of the paintings which cover its vaults and walls, especially because here, on the vaulted roof over the tomb, Giotto painted four most striking and renowned pictures, — allegories of poverty, chastity, and obedience, and the beatification of the saint whose body lay beneath. Quaint, imperfect, strange to modern modes of thought and representation, these allegories appear, but beautiful and of deep and permanent significance to one who interprets their meaning in the light of the thoughts and emotions and faith of the time when they were painted, and judges of their artistic merit by the standard of what, up to that time, had been accomplished by the art. No more appropriate, no more impressive decoration for the burial-place of such a personage as St. Francis can easily be conceived.

These paintings were but the first of a long series with which Giotto adorned the walls of churches in various cities of Italy. He became not only the first artist of his time, but he outranks in power of imagination, and of properly artistic conception, as displayed in the rendering of character and action, all other Italian artists. He was supreme as painter, as sculptor, as architect, and when Florence, in 1334, sought for the best man to direct and carry forward the work on her new cathedral, she called upon him to take the place of master of the works, since "in the whole world there was not to be found any one more competent," and she decreed that he was to be "received and to be held dear in his own country as a great master." Among the works of art which give to Florence her splendid distinction, ennobling her above all other modern cities save Venice alone, the crown is the Campanile of Giotto. No architect can study this most exquisite of modern buildings, without recognizing that great part of its beauty lies in qualities which exhibit the mastery of the artist, not in one but in three arts.

The work which Giotto did as a painter at Padua, at Pisa, at Rome, at Naples, as well as in Assisi and Florence, was mainly accessory to architecture, and though seldom, if ever, on buildings designed by himself, yet so complete was the mutual relation of the arts, that the joint product of painter and architect seems often but the creation of one spirit. Even in his time, however, and still in greater degree as time went on, painting became a more important element in the building than the architectural structure itself. The causes of this change were numerous; they lay deep in the moral and social conditions of the age, as well as in the natural evolution of the arts. The change was essentially of equal injury to both the arts, though the evil results were most conspicuous in architecture, and the single example of the Sistine chapel is sufficient to illustrate how both arts suffered from loss of sympathy in conjoint production.

But with this decline we will not occupy ourselves, but rather attempt to determine some of the principles which guided architect and painter in their common workin the better days of the thirteenth and fourteenth centuries. In the very inception of his design the architect took account of painting as the chief assistant in producing the effect which he sought in his building By its means he was to secure the color required, not merely to give the needed general tone and hue to his walls, but to re-enforce the value and define the function of the separate elements of his building, to give vivacity and interest to spaces otherwise lifeless, to mark with distinctness the leading lines of his edifice, and to make the beauty of its proportions more obvious and impressive. To accomplish these ends, the painter recognized to be the object of his work. His art was primarily decorative; that is, it was to be in the first place appropriately beautiful in its color and in its relations, whatever else it might be. The double nature of his art occasioned him no perplexity. Within the scheme of color decoration he felt that there was abundant freedom of opportunity for the expression of emotion or sentiment, —for the representation of character or incident. He had, indeed, a story to tell, and the conditions upon which he was to tell it were not so much restraints as supports to his vivid imagination.

But though the first and fundamental object of the painter was to make his work decorative, and to enhance by it the character and beauty of the architectural spaces and forms upon or in relation with which it was to be displayed, his second and not inferior object was to make it interesting, — to awaken by its means the associations appropriate to the building which it adorned, and to quicken the emotions or stimulate the thoughts connected with the objects to which the building itself was dedicated. This task during the great centuries of Italian art was comparatively easy, for what may be called the public interests of men were concentrated to a much greater degree than in subsequent times upon two main topics: religion, — the relation of this world to another, the eternal destiny of man; and politics, — the true order and government of the state, or of the community of which each individual formed a part. Both of these great topics, and especially religion in all its aspects, presented themselves to the imagination in concrete and material forms, which rendered them natural subjects of pictorial representation. The faith of the multitude was ardent, and it was based upon simple, and for the most part material conceptions. The political ideas of the time were also simple, and held with a degree of passion the effect of which is difficult to realize in days of more complex and developed social theories and relations. The artist was himself wholly under the sway of the sentiment and faith of his people.

Moreover, the thirteenth century, and the early part of the fourteenth, in Italy, was an age in which the poetic imagination was stimulated beyond the usual measure. The inspiration of the poetic spirit was in the air that all men breathe. The shepherd boy on the mountain-side was filled with it, the artisan in the narrow street of the city did his work in unconscious obedience to the dictates of the imagination. It was the very atmosphere of art, and the artist, sensitive to all the influences of his time, and following closely, to use Dante's phrase, behind the dictator, gave the consummate expression to the faith and feeling of the community. It mattered not whether he was called to adorn church, or cloister, or public hall. The subject he was to treat would in any case be familiar. His part was to give to it the most impressive and direct treatment. His own soul was full of it. It had a real and vital interest to him, and to every man who should see his work. The same subject was frequently repeated, but each artist had his own way of presenting it, and it was to his advantage that the scene and its natural associations should require no explanation in words, but should appeal directly through the eye to the heart and the intelligence of the spectator. It is this absence of research, of remoteness, of novelty, which gave to the works great part of their power, and elevated their purely artistic character. They were not the expressions of merely individual fancies, of wilfulness or caprice of genius, dependent for effect upon special personal qualities or gifts, and requiring specially trained sympathies for their appreciation, or special learning for their comprehension; but they had universal and immediate significance.

It is true that the taste of the age led often to symbolic and allegoric representations. But even these were for the most part readily intelligible and familiar types, and, however cold abstractions they may now seem to us, with our altered modes of conception, they were full of warmth and significance in a time when religion and poetry alike found in symbolism the favorite mode of expression of the simplest and most affecting truths. The Divine Comedy is the proof of the permanent power of symbolic art, provided only that the artist be possessed of imagination of sufficient force to give real form and life to the abstractions of the understanding.

Thus it is that the works of the painters of those days are the most important records of the times, — records, not indeed of historic incidents, but of the spirit, passions, and convictions of living men. They interpret character and history.

It would be not without interest to illustrate the close relation of art with life by the study in detail of some of the series of paintings with which the walls of the churches and palaces of these centuries are adorned; to read the application and interpretation of the Bible story, and of the fortunes and destiny of man, as they are depicted on the doubly sacred walls of the Pisan Campo Santo, or the representation of the life of St. Francis in the Bardi chapel in Santa Croce, or of the labors and triumph of St. Dominic and his order in the Spanish chapel; or some other of the multitude of similar works. But such a study might seem too remote from a practical application to the mood, the faith, and the demands of our own time. Instead of dwelling upon these, I turn to the paintings with which in the fourteenth century the Sienese adorned the walls of one of the halls of their public palace, the Palace of the Republic, the City Hall of the ardent, vigorous, beautiful little commonwealth.

It was in 1337 that Ambrogio Lorenzetti, one of the masters of the Sienese school, whose modern fame does not equal his deserts, was employed in decorating the Sala dei Nove, or Hall of the Nine, the chief magistracy of the republic, in which they were accustomed to hold their meetings. His work shows him to have been a poet, deeply imbued with the doctrine of his time, and especially with its taste for symbolism and readily intelligible allegory. His scheme of decoration included the whole surface of the walls, but his chief work consisted of three vast compositions, in the first of which he displayed, in a full pictorial allegory, the principles of good government with direct application to the Commune of Siena; the second fresco represents with fresh and varied illustrations the works and fruit of peace under a good government, while the third depicts the consequences of tyranny. It was no idle task that the painter undertook. Siena required the lessons which he proposed to set before the eyes of the citizens. He recognized the gravity of his commission. His imagination was quickened by the opportunity to give expression to truths that needed to be pressed home upon the hearts of the people. His conceptions were not the product of cool reflection, but of ardent sentiment and permanent conviction. His allegory should be easily read by all men. The beauty of its form should be but the transparent garb of its significance, and, while attracting the attention of the most careless observer, should fix it upon the meaning that lay beneath the surface. Siena had suffered deeply from the discord of her people, from the misgovernment of her rulers. There were few communities in Italy more turbulent, more distracted by faction. In spite of disorder, she yet had known prosperity. It was the part of the artist to hold up to her gaze the mirror of her own conditions and her own needs. In the whole field of painting I know of no more weighty piece of doctrine than these great works. It is vain to attempt to convey a true impression of them by description. I will point out only some of the striking features of the first of the series.

On the left of the spectator hovers a crowned figure of Sapientia; from her right hand depends the handle of a balance whose beam touches the head of a beautiful, serene, seated figure of Justice, who looks up to the Wisdom above. On either side of the head of Justice are the words which Dante in Paradise beheld the spirits of the Just form in their singing flight, — *Diligite justitiam qui judicatis terram.* With her right hand she holds even the scale of distributive justice, leaning out from which a winged figure with a sword in one hand strikes off the head of a criminal, while the other hand places a diadem upon the head of a virtuous ruler. With her left hand Justice holds even the scale of commutation, from which another winged figure is giving their allotted gifts to two kneeling personages. Beneath the feet of Justice is seated Concord, holding in her left hand two cords of white and red which hang from the waists of the winged figures in the scales above. From her the united cords are received by a man in honorable garb, and carried by a procession of twenty-four persons, who advance two by two, and represent from the life the administrators of the government of the commonwealth, to the foot of a throne whereon sits a mighty and stately figure, crowned, holding in his right hand a sceptre to which the red and white cord is attached, and in his left a shield. On either side of his head are the letters C. S. C. V., *Comune Senarum Civitas Virginis* Faith, Charity, and Hope float in the air above the image of the city. At his right sit figures of beautiful queenly women, representing Peace, and Fortitude, and Prudence; at his left, Magnanimity, Temperance, and Justice. At his feet, opposite the procession of the magistrates, is a group of subjects offering tribute, and of bound captives and malefactors guarded by soldiers on foot and on horseback.

Such is the main distribution of the principal figures of this speaking picture. Except for the difference in size of the figures according to their relative dignities, — a common piece of symbolism in the pictorial or sculptured representations of the Middle Ages, — there is little in this work that betrays immaturity of art, or that has not permanent as well as immediate significance. The allegory may indeed appear to us, with our wider political experience and our general literary education, to have almost a childish simplicity. In order to appreciate it truly, we should transfer ourselves in imagination to an age without printed books, of little acquaintance with history, and in which political reflection was with most men in its earliest stages. In all periods, even in our own, it is the simplest truths, the axioms of morality and of political philosophy, that chiefly need enforcing upon the mass of men. Even-handed justice, concord in spite of diversity of interest, integrity in public service, prudence in public counsel, temperance in political debate, are not yet so firmly established as rules of conduct, that the artist who should so illustrate them by poetic and imaginative treatment as to impress their worth more deeply upon the hearts of his contemporaries need doubt that he had rendered a great public service.

So beautiful was the figure of Peace in this picture of Lorenzetti's, so did she affect those who beheld her, that from the time she was painted the hall has borne her name, and been known as the Sala della Pace.

It is this want of recognition of the public ends of art, the lack of conviction of the function of the arts as the means by which the deepest sentiments and the highest ideals of the community are to be, not only expressed, but confirmed, that make our arts for the most part to-day so uninteresting, so unmeaning. It is of comparatively little use for painter or sculptor to offer the aid of his art to adorn the works of the architect, unless he have something to express in painting or in sculpture that shall add to the building more than a mere play of beautiful color, or of intricate forms of light and shade. He must have first something to say that shall be worth saying, — something by which the heart of the beholder shall be touched or his intelligence aroused. No matter how familiar his teaching may be, provided only that his own imagination find in it a strong motive, and that it be of concern, not to himself alone, but to the mass of men. In our times the artist will do well to avoid allegory; it is ill adapted to our prevailing temper and to modern modes of thought. It is not the form in which the poetic sentiment in these days inclines to embody itself. Modern allegories leave the reader or the beholder unmoved, and the public service of art may well be called in question if the artist chooses a mode of expression remote from the common understanding, and incapable of touching the emotions with direct and forcible appeal.

Suppose the artist inspired with the true spirit of the teachings of Christ, will he not find in the Gospel stories incidents of inexpressible and permanent interest to be interpreted afresh by his imagination? And would not the walls of our churches once more become beautiful, and be invested with sacred interest, could he, with his heart filled with the significance of the story, depict upon them, with the vivid realism of poetic conception, the scenes from the life of the most beneficent of human teachers, in such wise as to give to the worshippers a fresh sense of the message of love, of brotherhood, of self-sacrifice, of purity, of which the world stands in need to-day as much as in any past time? Or if he be called upon to paint the walls of some legislative hall, is there nothing in the legend or history of his own land from which to draw eternal and universal lessons, conveyed by the representation of familiar incidents of heroic self-devotion, of pride in duty, of fortitude, of magnanimity, of honor?

Architecture demands such assistance from the other arts, and it is for the architects of public buildings in our country to build them with such design that the painters and sculptors shall feel that their own best work belongs to them, takes great part of its life from them, and that they shall thus be brought to seek such culture as is required for the production of works rich in interior content, as well as beautiful in color and in form. It was this union of significance of contents with beauty of representation, that made the decorative works of the early Italian painters the models for all future art. As the ardor of imagination and of faith with which they were filled grew cold, and as the fancy sprang up that artistic treatment was alone sufficient, and the nature of the subject treated was matter of little concern, there crept on a general decline even in the purely decorative effects, and the crude extravagances of Giulio Romano and the absurdities of Bernini take the place of the grandeurs of Michelangelo, and the sweet, gay decorations of Benozzo Gozzoli or Luca della Robbia. The roses of Botticelli are beautiful in their decorative character; but his roses grew in a garden in which he had walked in company with the goddesses of ancient days, or with the Virgin and the saints of Christian mythology.

I cannot but believe that the time shall come again when the three arts shall recognize their mutual dependence, and when painting and sculpture shall once more give architecture its noblest decoration. But it will come only when the architects themselves feel more deeply than at present the importance of their art in its moral and intellectual relations, as embodying in its monumental structures the expression of the character and the civilization of a race, as influencing the course of its spiritual development, as quickening its historic sense of obligation to the past and responsibility to the future. A great work of architecture, decorated with painting and with sculpture, is not a lifeless monument of the past, but a perpetual, living incentive to great achievements and high aims.

The papers were referred to the Committee on Publications, and after the presentation by the president, on behalf of Mr. McArthur, of Philadelphia, of a number of models for stone carving to be preserved in the collection of the Institute, the convention adjourned to the following day.

SECOND DAY'S SESSION.

THURSDAY, NOV. 20, 1879.

The convention reassembled at 10 A. M.

The Auditing Committee reported that one of the necessary papers for examining the treasurer's accounts was not at hand, and while with that exception the account was found correct, it would be necessary to leave to Mr. Le Brun the charge of completing the report subsequently.

The nominating committee was then appointed by the Chair, consisting of Messrs. Robertson, Stone, Longfellow, Schofield, and Ware.

The next business was the report of the Committee on Education, presented by Prof. Ware, who said that the committee had hoped for the attendance of Profs. Babcock of Cornell, Lindsey of Princeton, and Ricker of the Illinois Industrial University, who could, like Prof. Sturgis, describe the condition of their department in their respective colleges.

Instead of that, they had received a note from Prof Lindsey, simply regretting his inability to be present, and letters from Profs. Ricker and Babcock, only briefly referring to the condition of their respective schools.

In regard to the course in architecture at Princeton, Prof. Ware said that, like that at the college of the city of New York, described by Prof. Sturgis, it formed a part of the undergraduate course. In both these colleges it was considered that if the study of the arts of design was intended to be made a part of a scheme of liberal education, architecture afforded a better field for that work, better means for accomplishing it, and better facilities for explaining to the generality of students than painting or sculpture, which had also fewer points of relation to history, philosophy, and common life.

In the university at Syracuse it was understood, though no report had yet reached the committee, that architectural study had acquired a standing, though not, apparently, a very secure one, and they were not informed whether it formed part of a professional or undergraduate course. At St. Louis, the university carried on a limited course of architectural instruction, but much hampered by its dependence on the engineering department. It was, however, to be hoped that in the recent development of interest in fine art there, this part of the university curriculum might receive more attention, to its advantage.

At the Massachusetts Institute of Technology there had been some increase in the number of students in architecture, thirty being now on the list, of whom nine or ten were pursuing the full four years' course of liberal and scientific instruction, while the others took the special two years' course of architectural study only. The collection of casts belonging to the Institute had been removed to the Museum of Fine Arts, and its room was to be filled by a collection of building appliances. Some exercises suited to the wants of draughtsmen who had already some proficiency in the routine of architects' offices had been introduced and proved useful.

The Secretary of Foreign Correspondence, Mr. Longfellow, reported having found the duties of that office very light. The habit of communication with foreign architectural societies seemed to have fallen into desuetude, and there had been no special occasion for renewing it. Even the interchange of publications had virtually ceased It seemed desirable that some degree of intercourse should be renewed, and Mr. Longfellow therefore suggested that the Secretary should again forward the publications of the Institute to the foreign societies who had heretofore received them.

The only matter of interest which had come up during the year was a letter from the Secretary of Foreign Relations of the port of Batoum, in Russia, expressing his admiration, not only of American institutions in general, but of American architecture, and asking for information in regard to the methods of building in America, and the names of firms dealing in building materials and appliances. He asked also for examples of American plans and elevations, and wished to know to whom in this country he should apply for plans.

In answer to this letter, Mr. Longfellow said that he wrote the Supervising Architect of the Treasury Department, and obtained the promise of some perspectives, working drawings, and photographs, to which he himself proposed to add volumes from the files of the "American Architect" and the "Architectural Sketch-Books." He also named a number of prominent dealers and manufacturers, and in answer to his request for the name of an architect, he referred him to the plates in the publications sent him, which had the names of the designers appended, so that he might make his own selection. He suggested that if he desired to engage some one to take charge of actual work, the Institute would be glad to help him in selecting suitable candidates.

The report of the Committee on Membership was then presented by Mr. Haight as follows: —

REPORT OF THE COMMITTEE ON MEMBERSHIP.

Your committee have considered so much of the President's address, and of the annual report of the Trustees, as relates to the maintenance and increase of the Institute in point of numbers.

It is clear that upon this depends its usefulness to the profession, and its financial prosperity.

In regard to the three points which are thus brought to their notice, the committee would report: —

1st. That the members of the Chicago and Cincinnati Chapters, to whom reference is made by the Trustees as being behindhand in their dues to the Institute, are technically, in accordance with the provisions of the By-Laws, no longer members; there is, accordingly, no question of unpaid assessments. But it is competent for the convention to readmit them to membership without the payment of an entrance fee, or any other formality; and this we recommend the convention to do, if those parties desire it.

2d. We also recommend to the convention to authorize the Trustees to admit such persons as they may see fit to membership without the formalities prescribed by the By-Laws.

But in making these recommendations, your committee are not of opinion that this, or any similar action, will touch the root of the evil under which the Institute suffers. At the risk of seeming to go beyond the line of duty assigned to them, they venture to call the attention of the convention to some considerations which the attempt to discharge that duty has forcibly brought to their notice, and which touch the very organization of this Institute and of the Chapters of which it is composed.

This organization dates from the year 1867, previous to which time the Chapters had no existence. The forming of a federal union, under which it has since gone on, was devised or set on foot at that time. It was hoped that it would greatly facilitate the establishment of local societies. This expectation has been met, all the Chapters except two owing their existence to the invitation of the Institute.

It was also hoped that this form of organization would lead to active relations between the societies and the central body; that there would be a certain amount of mutual assistance and co-operation, and that the Chapters would serve as feeders to the Institute, supplying a regular succession of Fellows, trained up to regard it with respect and affection, and proud and eager to share its honors and burdens.

It is needless to say that these expectations have not been met. For some cause the organization has lacked vitality. The old fable has seemed to be reversed. The members have not fed the belly, and the belly has seemed to starve the members.

One can still fancy, as we found twelve years ago, that it might work differently; but this is the way it does work. and, so far as can be judged, this is the way it is likely to continue to work, — that is, it is likely not to work at all; and the reason of this it is not difficult now, after twelve years' experience, to see plainly enough.

It is easy enough to see now that these ingenious and carefully adjusted ties never have worked, and never will. They interfere with freedom of action, and give a sense of constraint and compulsion which is irksome and dispiriting. It hampers both the Institute and the Chapters. If one wants to belong to the Institute he is compelled virtually to join a Chapter, whether he will or no.

If he wants to join the Chapter in full standing, he is compelled to become a member of the Institute, whether he wants to or not. He must "pool his issues" and take part in both national and local affairs, or neither.

This is a vexation and annoyance, and many men who would gladly belong to both organizations if they were separate, refuse to join either, now that they are united.

If these views are just, and if they are seriously shared by the members of the Institute, it would seem as if the time had come to take steps for a revision of the constitution itself, with a view of dissolving all organic connection between the local societies, leaving still to the Institute the care of the general interests of the profession, and to be sustained by a purely voluntary membership.

C. C. HAIGHT,
WM. R. WARE,
JAS. McLAUGHLIN,
R. H. ROBERTSON,
Committee.

Mr. Congdon, to bring the report before the house for discussion, moved to lay it on the table, and Prof. Ware spoke in defence of it, saying that the position of the committee had been, after some debate, unanimously taken, and was fortified not only by the somewhat unsuccessful history of the Institute under the old system, but by the experience of other bodies, which have prospered under such a system as the committee had proposed. In England, as well as in many cases in this country, the local bodies were independent of the national organization, and were thus able to carry on a larger and more successful work. The present constitution of the Institute had been demonstrated to be a failure, and the committee were of opinion that the separation of the local societies from the Institute, so that no one could substitute his duty to one for that due to the other, would tend to the prosperity of both. He supposed that no action, further than an expression of the opinion of the convention, could be had at that time, but they desired to have this, in order that the Trustees might take the proper steps in reference to the matter.

Mr. McArthur wished to know if the committee had anything definite to propose, and was answered that there had not been time enough to prepare a scheme, and the best way would be for the convention, after expressing an opinion on the subject, to appoint a new committee to prepare a definite plan of reorganization.

Mr Longfellow thought the convention would hardly wish to take action without ascertaining the views of the Chapters, and therefore moved that the matter be referred to the Trustees with instructions to communicate with the Chapters and ascertain their feelings in the case, and then, if it should be in their judgment expedient to carry out in any form the views of the committee, that they should devise and lay before the next convention a scheme for accomplishing the necessary changes in the constitution.

Mr. McArthur objecting that the reference to the Chapters was a loose mode of proceeding and put them in an awkward position, Mr. Longfellow replied that he thought it very desirable that so important a step should not be taken without consulting, not only the Cincinnati and Chicago Chapters, but also individual members, who had till lately been connected with the Institute, and had only been dropped from the rolls for the non-payment of dues, for which many of them had perhaps the excuse of necessity, and he would be glad if some steps could be taken towards reinstating such members before any decisive action was taken on the matter before the convention.

Mr. Congdon explained, in regard to the Cincinnati and Chicago Chapters, that their connection with the Institute could hardly be regarded as severed. The former had voted to dissolve their connection, but it could hardly be said to be accomplished without some action by the Institute. The latter had taken no formal action.

Mr. Hunt having taken the chair, Mr. Walter said, in regard to the secession of these two Chapters, that it appeared to him very necessary to take some action upon their case. They had stated their grievances, but other Chapters also had theirs, and in answering the appeal of those Chapters, such action should be taken as would cover the case of all. In his opinion, it was necessary that something should be done to make admission and continuance in membership easier, and whatever was done for a part must apply to all.

Mr. Longfellow's motion, to ascertain the opinion of the Chapters, was put and carried.

Mr. Ware wished to offer a resolution that the convention should take some action in regard to reinstating those members who had been dropped from the rolls for non-payment of dues, but withdrew it to allow the reading of the report of the Finance Committee, which was as follows: —

The Committee on Finance respectfully report that they have taken into consideration the matter of the remission of dues in the case of such delinquent members of the Institute as are desirous of regaining their membership in the Institute, and they recommend that permission be given them to make application as new members, and that all so applying be admitted upon their paying the sums respectively due at the time their names were stricken from the roll, the second initiation fee in this case being remitted.

The committee offered the following resolution: —

Resolved, That the recommendation of the committee be adopted, and the Secretary be directed to notify the delinquent members of the Institute of the action here taken.

This was passed, and Mr. Stone, for the committee, presented a second resolution, which was also adopted, as follows: —

Resolved, That the resolution passed by the convention of 1878, authorizing the special assessment of $8 for Fellows and $4 for Associates, be rescinded, and that the sums collected on that account be credited to the respective parties who have paid the same, toward cancelling their annual dues.

The reason for this action was stated to be that the end of the year found the Institute with a surplus of some $200 in the treasury, and some further sums to come in, and the estimate for expenses of the ensuing year showed that the ordinary income would be sufficient without calling upon the special assessments, so that those who had paid these might fairly be credited with the amount toward their future dues.

The committee offered also a third resolution, as follows: —

Resolved, That the Secretary be directed to issue the necessary notice required by Article XIII. of the By-Laws, that action on the proposition of a change in the By-Laws, by which in case of non-payment of dues a money penalty and suspension of active membership shall be substituted for complete dismissal of delinquents, will be taken at the next annual meeting of the Institute.

Mr. McArthur remarked that in the Society of Civil Engineers those who neglected to pay their dues were not dropped from the rolls, but ceased to receive the publications of the society. They could, however, by paying arrears, obtain the publications which they had lost. He would hardly say that that was the best course for the Institute to adopt, but unquestionably it was unwise to drop members so suddenly as was now done.

Mr. Stone said that the matter would be discussed at the next convention. Under the rules, notice must be given previously of any proposition to amend the By-Laws, and this resolution only provided for giving that notice, so that the next convention would be enabled to consider the question and act upon it. The resolution was then adopted.

The Report of the Committee on By-Laws was presented by Mr. McArthur, and laid on the table, to be taken up with that of the Committee on Membership.

REPORT OF THE COMMITTEE ON BY-LAWS.

The Committee on By-Laws respectfully report that they recommend the adoption of the suggestion offered by the Board of Trustees, as follows:

That the Board have power (without referring the matter to Chapters as now) to elect Fellows from among the older architects, who do not now belong to any Chapter associations, without the present proviso of a semi-examination, *i. e.*, by the presentation of plans and designs showing their work.

Also — In their discretion to advance from the grade of Associates to that of Fellows, any such of the former who have distinguished themselves by especially meritorious work. That such advancement may be made by the Trustees without consultation with Chapters, and be considered as honorable distinction; and that the usual entrance fee required of Fellows be remitted in these cases, but otherwise they shall be subject to the same annual dues as Fellows regularly nominated and elected; and that any articles now incorporated in the By-Laws which are not in conformity with these recommendations, be rescinded.

JOHN McARTHUR, Jr., *Chairman.*

The Committee on Nominations not being ready to report, the reading of papers was taken up, the first being by Mr. William A. Potter, of New York, entitled "Some Causes of Failure in American Architectural Design." Mr. Potter explained that the inference ought not to be drawn from the title of his essay that he thought *all* American architecture to be a failure. It would not do to take the work of a few cultivated men as representing the architecture of the country; the collective design of American buildings was to be considered, and if, for instance, the majority of New York buildings were to be called good architecture, he did not know the meaning of the term. Even in the profession, there would hardly be much difficulty in finding men, if not in the ranks of the Institute, at least among the great number of those outside of it who professed the art, to whom some of his remarks would apply.

SOME CAUSES OF FAILURE IN AMERICAN ARCHITECTURAL DESIGNS.

Allow me to say a word or two as a preface to the paper which I am about to read.

Some exception has been taken to the title which I have given it. It has been intimated to me that the inference might be drawn from the words "some causes of failure in American architectural designs," that I intended to imply that all American architecture was a failure. I own that I do not, as a whole, consider it a success.

In discussing the subject we must take the architecture of America as a whole. We cannot discuss the work of a few cultivated men and call this American architecture. We must take the mass of buildings as we find them, and if the majority of buildings in this city, for instance, is good, then I do not know in what good architecture consists. I would not have the temerity to say that the first half of my paper was applicable to members of the Institute, for were I to do so, the injustice in many instances must be apparent; but the number of men practising what is called the art of architecture spreads far beyond the limits of our Institute, and if we cannot apply any of these strictures to ourselves, I am quite sure we can each one of us find many feet which these shoes will fit most snugly.

I propose to state what seem to me some of the causes which make the faults of architectural designs in this country possible, faults resulting in those blots which form rather the rule than the exception in American architecture. The question is a broad one, and the more thought one bestows upon it the greater seems to be the importance of our acceptance of the answer given.

The most superficial glance backward through the last ten years cannot fail to give encouragement to a hopeful architect, one loving his art and wishing for its full success. That progress and advancement have been made will not for a moment be denied, and is it not equally undeniable that still greater progress is both possible and desirable? I may be accused of making a pessimist's statement if I say that for every ten failures made a decade ago only eight are made to-day, for possibly the ratio may be greater in favor of the present, but in looking through the architectural journals, or in walking the streets of this or other American cities, one is hardly tempted to make a more favorable criticism.

And whose fault is it that no better work is done? Is it the architect's or the public's, and are there other causes beyond these and beyond the architect's control? Is this prolific sowing of tares his fault or his misfortune, and is he alone to be blamed for the low standard which he has set up as the criterion of this art, which it should be his glory and his honor to foster? I am inclined to answer that a very full share of the censure must rest with the architects; they cannot withdraw themselves from the discussion as innocent parties, to the hem of whose garments no blame is attached.

That there are other causes beyond their control, at least for the present, must be granted, but with them we have now less to do. I will try to state them later on, that their bearing and influence may be properly seen. They are not to be removed in a day; and if they be removed at all, their removal will follow the correction of those faults in design for which the architects are alone responsible. Let us then look this matter seriously in the face and admit, with others outside of this Institute, our share of the responsibility. Let us admit that we and others are partly, even largely, to blame for the indifferent position of architecture in this country, and, seeing our error, do what we can to remedy it. I will divide these causes of failure into two classes: first, those causes over which the architect has control, and he having control must therefore be held responsible for his failures; and, second, those causes over which he has no absolute control, and hence he can be held as only remotely responsible. I am persuaded that were he to remove those causes of failure for which he is responsible, it is only logical to conclude that the second class of causes would in time be removed of themselves.

But so long as the profession continues its present course in relation to architecture, so long as it permits itself to practise the art handicapped by disadvantages, the removal of which rests solely with itself, it is but fair that it should be the object of that contempt which nine tenths of its efforts create, and it alone must be to blame for the disfavor with which the art is regarded. The architects are slowly, but surely, building up a monument to their incapacity, a monument which ignorant and thoughtless people may admire and copy; but architecture as an art will be as dead as their imaginations, and will be a byword and reproach in the mouth of nations fortunate enough to have escaped from these fatal blunders.

First and foremost of those causes of failure over which the architect has control is want of proper and thorough preparation to practise the art which he has chosen as the work of his life. Half fledged, with a meagre preparation in some architect's office, picking up what crumbs may chance to fall from the master's hands, crumbs often enough stale and mouldy, without taste or nourishment, and so worthless; learning, and learning imperfectly, too, the mere technique of his art, he plunges into practice to commit blunder after blunder, and to perpetrate such things as it were a sacrilege to call architectural works. What does he know of the underlying and stable foundations of all good work in the past? The book is closed to him. He is blind and deaf to the past, and to him Egypt and Greece and Rome, the Middle Ages and the Renaissance, so far as the principles or practice or living facts and processes are concerned, are only so many meaningless words, conveying no idea and presenting no possible point of departure for his own work. What does he know of the Greek column and entablature, of the Roman arch and vault, of the pointed arch of the Middle Ages, or of the use and reason of the pinnacle or flying buttress? What does he know of that great intellectual activity which was developed with the discovery of the art of printing, and which brought about the Renaissance, or of that new birth of architecture in England to-day? In any one of these phases exist endless principles, the full mastery of which should be the groundwork upon which to build up the fabric of his own practice. He knows them not, but upon the quicksands of his ignorance, and in the quagmire of his presumption and temerity, he attempts to raise a structure which justly and properly should totter and fall and bury him in its stupid débris, but it does not. Through this state of things a public slow to learn is led to admire his eccentricities, to applaud his grotesque antics, and to believe in this false prophet.

Or again, he may have studied with some zeal, and have given more time to master the various branches of his art than others have given, and still be entirely unprepared to cope with the task he has set himself It matters not so long as he is incompetent through insufficient education; the result is, and always will be, the same. We may be sure that his work is of little value to himself, to the public, or to his art. Very possibly the majority of such architects, with proper preparation and thorough training, might have produced creditable works, creditable alike to their art and to themselves. But, without knowledge of the fundamental principles of architecture, they have recourse to tricks and artistic subterfuges, or aim at novelty, as if, perchance, to surprise the public into favorable attention; when of all emotions that of surprise is not the legitimate object of any art, or, if legitimate, is only so in a very subordinate degree.

How easy it is to be original! One might change the position of the sill and lintel with their concomitant decoration, turn columns upside down, or do a thousand other things never done before The effect would be startling, to say the least. But originality with beauty is another and very different thing, and not given to many men to produce. Surely we have seen numberless instances in which the architect's ignorance of the essential principles of the art has permitted him to produce new and terrible results, scarcely less startling than might be produced by the reversal of these accepted forms. There is, of course, a reason for the cap being at the top of a shaft and the base at its foot, of a pediment being set over an opening and not under it, reasons which ought to be familiar to every one who sets out to practise; but ask many of these architects the reason why they design a column with its usual arrangement, and they will have no other reason to give than that they have always so seen it. Could we keep such persons within the limits of mere copying, and that from good models, at least little harm would come, if no good; but we cannot, nor would such a course ever help to the advancement of architecture. The very A B C must be learned, if we would combine letters to form words, and the rules of grammar must be at our command if we would combine these words properly and intelligibly. Do all architects, then, know the A B C, much less the grammatical rules governing the art they practise? It would be impossible to study properly the history or practice of any phase of architecture and not become familiar with the principles which lay at its roots, principles on which it was founded and which make it possible, principles at once æsthetic and practical. Who can study a Greek temple or a Roman bath, and not be struck with the philosophic use of material in the one, and the philosophic planning as a means to an end in the other? These two buildings having been well studied, two principles will of necessity be fully understood and force themselves upon the architect, and he will thus learn the relation of material to form, and of arrangement to use. And yet how many instances are thrust into our notice every day, in which both these general principles are absolutely wanting! Whose fault is it if we see constructive principles governing the use of one material, and harmonizing with its physical qualities and capabilities employed, in conjunction with a material which can be logically used only in some other form? And whose fault is it when we see buildings built whose arrangement seems to have been made with no reference to the uses to which the building was destined? It is the fault of the architect who has come to his task unprepared, and whose responsibility reaches much further than I would dare to say. And so follows a whole train of errors and failures. Blunder after blunder is perpetrated, calculated not only to retard the proper advancement of architecture, but to mislead public opinion, or, in the eyes of the few intelligent people who watch these architects, to cover the art with ridicule. Success (and by that I mean success in its highest sense, not a favorable public notice, but a doing of right and good work without regard to what an ignorant public opinion may say of it), success, I say, can never come in any great measure to a man unless he has convictions, and strong ones, too, in relation to the work he has in hand. Be he politician, theologian, scientist, artist, or architect, he must have fixed convictions as to the right and the wrong of what he may do or teach. And who may be said to have convictions? Certainly not that man who is ignorant of the facts and principles of the art or science he may profess to practise. The broadest knowledge, the fullest acquaintance with facts and theories and principles, joined to sound judgment will give any man a reasonable groundwork on which to base his convictions; but no amount of good judgment will avail if he has not given careful study to facts, which make a judgment possible. So it follows that many architects coming to their work unprepared by an acquaintance with the æsthetic and scientific principles on which the art rests, ignorant alike of its practice in the past, of the merits of its different phases, of the reasons for the existence of its very details, — these architects are, I say, without any convictions whatever. To them nothing is, nothing ever can be, absolutely right or absolutely wrong.

Judgment and reason cannot do this work, for they have nothing to work upon. Mere taste, as fallible as it is questionable, is all they have to guide them, and on this broken reed they cannot with safety depend. The result with many, even intelligent architects, is a running after each prophet who may arise, who, with some force or genius, has the power to render an eccentricity or revival of form for the moment the fashion. Such architects blow one day from the east, and the next day from the west, the day after that from the north, and on the following day from the south. They have been infected by the novelty of four different styles of work, and have tried them all, but whether good or evil they know not, and following blind inclination they show themselves to be very architectural weathercocks. Could this be so if they knew anything of principles or their value? If a man has convictions upon the subject, his work would be in the direction of, and governed by, these convictions, and practising one style he would reach such a point of excellence in its exposition or adaptation as education, and his natural gifts aided by experience, might allow. Architecture is a tentative art; it is not absolute. What do we know absolutely of the effect we are about to produce before we have produced it? We build up our errors of taste and judgment to remain in lasting stone. We have not the privilege of the painter, who may retouch his canvas, keeping it by him before it is perfect. We have no proof-sheets of our work to correct; nor are our words rehearsed, that at rehearsal we may correct our blunders. It is only through a series of failures of judgment that judgment is to be trained at all, and as we may never be sure of its being without fault, certainly it will never reach any reasonable degree of accuracy if we take up one style to-day, and another to-morrow, so having no experience in any one direction. We see this sort of thing every day, and if the architects who work after this manner were men of sound education, men of convictions, in fact, we should have fewer failures to deplore.

It is the learned men in all learned professions who place their profession where it ought to stand, and if the architects would wish to correct some of those faults which make failures in their designs possible, and to place the art of architecture where it has a right to be, mainly with them lies the power. Architecture is not an art of feeling alone. It is distinctly divisible into two parts, the scientific or practical, and the purely æsthetic. We cannot depend upon our feeling or aste, no matter how good both may be, for underlying all work are immutable and eternal principles of right or wrong which we ought to and must be familiar with, principles which are inseparable from the component parts of the art, correlative and mutual and to be understood and mastered if we would combine those elements which in the combination of the scientific and the æsthetic create and form the art whose servants we claim to be. Let us then acknowledge, as we think we must, how many failures result from ignorance; and, admitting this, the remedy is at once found.

Another reason why many architects fail lies in the fact that they do not realize the dignity and importance of architecture. If any one art can claim the first place among the results of human genius, I think the strongest claim to that place rests with architecture, the art "which presses the noblest of other arts into its service and bends them to its will, at once their beginning and their end, the most lowly in its origin, the most glorious in its perfection." But while any discussion as to the relative dignity and position of the arts must be held as unwise and unprofitable, this is no reason why an architect should not be fully impressed with the dignity of architecture and of the responsibility which its practice lays upon him.

From the dim days of Egypt down to the present day no other art has been so clear an exponent of a nation's intelligence and culture as architecture; so much so that one might almost read the history of the human race in what remains of its buildings, and voiceless as these ruins may at first seem, they are full of utterance, for or against the people under whose hands they were first raised. Are we to be judged by any such standard in the future? Who can look at the calm grandeur of Karnac, or stand at the foot of those stately towers of Notre Dame, or thrill before the solemn splendors of Canterbury or York, and fail to feel that in espousing the cause of architecture, in becoming its votary and exponent, he has taken an enormous responsibility if he would do work at all attuned to the keynote which has been struck in these almost eternal symphonies of stone? He need not feel discouraged: quite the contrary; but he should labor so to learn the principles which guided the builders of these works that no matter how small the work he has to do he may do it in their spirit and with their wisdom.

And this leads me to a third cause of failure, which springs both from lack of education and from a want of appreciation of the dignity of architecture. It is that very many architects practise the art, more often than not, not as an art but as a trade. Pitiable as this may be, it is in no way surprising. What other results could follow? Ignorant of its principles, the knowledge of which might unlock some of its mysteries to them, might draw the veil and let them see with what almost God-like business they were concerned, ignorant of it and blind to its character and responsibilities, they rush in where angels might fear to tread. They drag down to their own level an art whose proper business it is to glorify and beautify our lives, and they make it the ignoble means to an end. Ignoble, I say, for any means must be ignoble which deal with prostitution. Have they not adopted the art? Should they not strive, therefore, to protect and prosper her? And yet ignobly they prostitute her. Do not think that I wish in any way to ignore the necessity of toiling for one's daily bread, for bread is as necessary to an architect, certainly, as to any one else, but this, it seems to me, has nothing to do with practising architecture in such a way as to render the architect unworthy of his art. How many men work with pride, with love for the art, or for the art's sake? I venture to say not one in twenty. It is impossible, looking at what we must see in walking the streets of the cities of America, to believe that the men who designed the buildings about us love the art which made these buildings possible. I do not ask any to give up their five per cent, or any part of it; rather would I urge them to insist on more; but can they not practise architecture for something more, for something higher, than this five per cent? Yes! For the love of the art! They cannot love it if they do not know how worthy it is of their highest love and devotion, and they cannot know this unless they know how great things it has done, and what noble principles lie at its heart. If they know it, and if they love it, — and so alone, — can they so practise it that the reproach which to-day must be laid at their doors can be withdrawn? Then, and then only, can the architects say, "We have given you the best that our brains informed could imagine, our judgment exercised could correct, and our hands trained could fashion, but you, blind public, you will not see our good work, and you refuse us your sympathy and your encouragement!"

That they will some day be able to say so if they will it, I do not doubt, but only in so far as regards their share, for then the public will not be blind, it will see their good work and it will not refuse them its encouragement and its support.

A few words will suffice to set before you those causes of failure which lie beyond the direct control of the architect, and which, though now active in their influence against the successful accomplishment of any architectural problem, will in time, let us hope, be less powerful in their influence

In any country or in any age, where no fixed principles are held as the foundation for architectural practice, where no limit is imposed upon individual taste or personal bias, a wide range must naturally result. This country, receiving, as it does, accretions to its population from every variety of foreign source, bringing within its borders men from the remotest parts of Europe and Asia, with their tastes and habits of life and thoughts distinctly developed, must, for the present, be the scene of great license in the character of any works of architecture which it may produce. We see the strongly marked influence of English, German, French, and Italian taste in any works built either by or for persons whose sympathies lead them back to styles prevailing in their fatherlands. The intelligent German desires the forms and characteristics of German architecture reproduced in the design of any work in which he is interested, and likewise the Englishman and the Frenchman, and so much so is this the case that from the architecture of certain cities or towns one can judge readily from what part of Europe the majority of their citizens has come.

We have no distinctly American architecture, but rather a free admixture of all sorts and kinds, drawing its inspiration from many fountains. This state of architectural practice is in no way calculated to produce a national architecture, nor to lead the practice of the architects towards or into any one style. Whether or not in time the habits of American life, the character of the people, and the necessities of climate and other natural causes will fuse all these varieties of style into one homogeneous form, answering to the requirements of our civilization, harmonizing with the eminently practical spirit of the people, and meeting the exigencies of our climate, must be left for time to decide, but to-day no such individual style exists. Our streets might be the streets of the modern part of any European town, so far as any distinctive architectural character is to be found in them.

That this has its influence in the creation of any architectural work cannot be denied, for had we a style in which those elements were strongly marked, and in which the majority of our architects practised, the very nature of things would result in a far greater number of successful designs; but we are too young a people to have created a style of our own and to have developed and perfected a form whhich should be the type of all American buildings In this we are at no greater disadvantage than all nations who have in past times erected a style peculiar to themselves, and so far as we can judge, many circumstances connected with our national life are in favor of a successful solution of the problem, — the nature of the government, the general intelligence and education of the masses, and the wide distribution of wealth, all of which are influences having been powerful factors in the creation and development of more than one of the great family of styles.

The newness of architecture in America, then, is one of those causes which are by no means to be overlooked in defining the causes of failures in the architectural designs of the present time. And directly contingent upon this is another cause which must be included among those influences adverse to the production of successful designs, and this is the absence in this country of any great monuments of architecture, which, while they may be taken as models for the formation of the architect's taste, at the same time act as a stimulus and incentive to his efforts. An architect producing a design as good as, or even better than the average of those produced around him, will naturally rest satisfied with his work. He has done as well as any one about him, although he may have been capable of doing much better, but of this he is either ignorant or indifferent. His powers have not been taxed to the utmost, and so long as he has to measure himself with men less able or no more able than he is, they never will be. Had he around him such monuments as English, French, or German architects must meet at almost every turn, he would have a stimulating power at work, quite independent of any current competition; an incentive as powerful as it would be beneficial. No matter how good his work might be, we should be very sure that it fell short of the point of excellence reached in those structures of more distinctively artistic periods.

While this disadvantage is inseparable from the newness of architecture in this country, it will depend very much upon us of this generation and day whether we advance or retard the time when the architects may have some good models around them. We cannot hope to erect cathedrals in all our towns, nor to scatter abroad through the land such works as the architects of the Middle Ages left to posterity, but we can, even in the smallest and least important works which we may have to do, leave results embodying principles of right, — results which, so far as they go, are instructive and creditable, calculated like seed sown to grow in time into something higher and better. If, on the other hand, we work in a slipshod, indifferent, ignorant way, just so much longer will be deferred that era of intelligent work which we should all wish to advance, and just so much more difficult will it be for those more intelligent and conscientious architects who may follow us to undo the harm which we have done. All our indifferent works, all the ignorance and carelessness with which we stamp the architecture of the present, will receive, perhaps, some admiration, and find imitators, and so its evil influences will spread further and further; but if we learn some true, fixed principles of the science and beauty of architecture, and embody them in our works, we will commence at least the accumulation of some works worthy of study and of imitation.

It is a law quite as true of art works as of anything else produced, that the supply equals the demand; that is, if good architecture is wanted by the public, it can have it. Here again is another reason why we do no better things; they are not wanted, much less insisted upon. We have an ignorant public to deal with, which is without any general art culture, and which, even when somewhat familiar with the principles governing the representative arts, is for the most part ignorant of and indifferent to that art whose connection with its life is most absolute. We deal with a public which too often likes what it should despise, and which sees no difference between a building with a soul and one without. There can be but one effect produced upon a thoughtful, studious architect left without encouragement and support, while some charlatan or mountebank builds up his impertinences to be admired and quoted. Is it a wonder that when he is employed he works with indifference, and without joy or enthusiasm? He sees with what worthless results the public is content, and that stimulus which ought to be added to his love of his work being wanting, his indifference, and finally his despair creep out, and show themselves in every line he may draw and in every effect he may create. If we could look to the public for discrimination, for appreciation, for censure, for rebuke, how much better our designs would be one can hardly realize; but the indifference which passes by our best efforts, and the ignorance which applauds our failures, cramp us, and leave us without the best promoting and correcting influence which could possibly be exerted through us upon our art.

If, then, we are and must remain without that correcting influence which intelligent public criticism would furnish, the responsibility is all the greater with us to be our own intelligent, thoughtful, honest critics, our own judges, impartial, severe, fearless. It is essential to the development of any art, that its work should be tried in the crucible of honest, intelligent criticism. If the architects as well as the public are ignorant, they may as well lay aside any hope for better things in the near or in the remote future, for they will not get them.

But if they inform themselves of the principles which are the groundwork of the past, if they study to acquire the spirit which has produced the greatest results of the art, if they reach a fair appreciation of its beauty and dignity, if they become possessed of some convictions as to what is right and what is wrong, then the profession may do without that public criticism for which it now looks in vain, and in some measure fill its place. At least, we will not then be the blind leading the blind.

Along the devious, dim path through which we must lead the public to the point of intelligent appreciation, grateful approval, and honest reproof, let us see that our lanterns burn brightly with the light of the true principles of architecture; that no ignorance and conceit of ours dim and retard the radiance.

Small though these points of light may at first be, their accumulated power may at some time reach a splendor of effulgence which shall spread out in all directions, and become a very beacon light, burning with all the brilliancy and purity of those two great lights, Greek and Gothic, and, like them, may mark one of the splendid periods of the building art.

The Nominating Committee being now ready to report, the convention proceeded to the election of officers for the ensuing year. Mr. Le Brun and Mr. Thorne were appointed tellers, and the convention adjourned, pending the counting of the vote, until 2 P. M.

AFTERNOON SESSION.

On reassembling, the tellers reported the election of the following list of officers: —

LIST OF OFFICERS AND STANDING COMMITTEES, ELECTED FOR 1880.

President. — Thomas U. Walter, of Philadelphia.

Treasurer. — O. P. Hatfield, of New York.

Secretary. — Henry M. Congdon, of New York.

Secretary for Foreign Correspondence. — W. P. P. Longfellow, of Boston.

Trustees at Large. — C. C. Haight, of New York; R. M. Hunt, of New York; J. C Cady, of New York; William A. Potter, of New York.

Committee on Publications. — E. T. Littell, of New York; A. J. Bloor, of New York; R. M. Upjohn, of New York; T. M. Clark, of Boston; J. McArthur, Jr., of Philadelphia.

Committee on Education. — Prof. Russell Sturgis, of New York; Prof. William R. Ware, of Boston; Prof. N. Clifford Ricker, of Champaign, Ill:, Joseph M. Wilson, of Philadelphia; H. H. Richardson, of Brookline, Mass.; W. P. P. Longfellow, of Boston.

COMMITTEES APPOINTED BY THE CHAIR.

According to the following resolutions by Mr. Bloor, — That a Special Committee be appointed to report to the next convention upon the Practice of American Architects and Builders during the Colonial Period, and the First Fifty Years of our Independence. Carried.

Members of the Committee. — George T. Mason, Jr., of Newport; R. S. Peabody, of Boston; W. P. P. Longfellow, of Boston; C. F. McKim, of New York; J. C. Cady, of New York.

Mr. Bloor, — I move the appointment of a Committee on the Best Method of solving the Tenement-House Problem, as it is presented in New York, to report to the next convention. Carried.

Members of the Committee. — A. J. Bloor, of New York; R. H. Robertson, of New York.

The result of the election being announced, President Walter rose and said: —

I should do violence to my feelings were I not to thank you for this renewed expression of your confidence. I could have wished a younger man to occupy this place, and one who lived in New York, and I so voted;

but it is your will that I should stay here another year, if I should live so long.

I am aware of the peculiarity of the times in which we live. Things about us in our profession are not as they were a few years ago. We do not know exactly where we stand. We have new elements to deal with, and new errors to combat. A thousand things connected with our profession meet us every day in the face, and we must be ready to meet all the circumstances that may arise. We are looked upon as the head of the building community. The public look at us as their guards against errors of construction, and against want of taste. Let us take care that we do not let what we build tumble down. Let us not build to please people a year to come or ten years to come, but let us try to build for all time. I shall not take up your time with further remarks. I rose simply to thank you. (*Applause.*)

On motion of Mr. Robertson a vote of thanks was tendered to Mr. McArthur, of Philadelphia, for his gift of models.

A paper was then read by Prof. Watson, of Boston, on "Atelier Instruction in Europe," as follows: —

ATELIER INSTRUCTION IN EUROPE.

BY WILLIAM WATSON, PH. D.,

Member of the French Society of Civil Engineers, and of the International Jury of the Paris Exhibition.

In the short space of time allotted to me, I propose to select as an example the most celebrated school with which I am familiar in Europe, one which received diplomas of honor both at the Paris and Vienna Exhibitions; viz., the National School of Civil Engineering, known as the *École des Ponts et Chaussées.*

I propose to give a brief sketch of the preliminary training exacted of its students, dwelling only on those topics which have special reference to drawing and design.

The students, with a few exceptions, are graduates of the Polytechnic School.

PRELIMINARY PREPARATION.

The usual course for a boy is as follows: —

He enters the preparatory class of the elementary division of the college (Lycée), at the age of seven or eight years. The studies of this division extend over a period of three years (the ninth, eighth, and seventh classes), and comprehend the following subjects: Reading, writing, spelling, arithmetic, grammar, geography, history, Latin, vocal music, gymnastics, and one modern language. At the age of eleven, he passes, by an examination, into the grammar division (the sixth, fifth, and fourth classes); here he continues his Latin, and commences Greek and free-hand drawing. At the age of fourteen he passes into the upper division of the college, by a second examination, consisting, first, of a Latin version; second, of an explanation of three texts selected from authors previously read, in French, Latin, and Greek; third, questions in the French, the Latin, and the Greek grammars; fourth, questions in history, geography, and arithmetic.

UPPER DIVISION.

The upper division comprehends four classes: viz., the third, the second, the class in rhetoric, and that in philosophy. The studies of the third class are the same as those of the preceding year, with the addition of geometry, vocal music being made optional. At the beginning of the second year in the upper division. the student is called upon to make his choice for science or letters, the course being divided at this point into two distinct classes, one leading to the bachelorship of arts and the other to that of science.

The scientific course continues the literary studies already established, with the exception of Greek, and gives a greater extension to the mathematical, physical, and natural sciences.

The last year of the course is devoted to the preparation of the students for the polytechnic, or higher normal school. Besides the lessons, the students execute a certain number of chemical manipulations, and prepare a series of shaded and colored drawings.

DRAWING.

The drawings may be classified as follows: —

Ornaments, six sheets.
Elementary geometry and projections, ten sheets.
Plots of surveys, four sheets.
Plans, sections and elevations of buildings, one sheet.
Geographical maps, three sheets.
Topographical, five sheets.
Shading in India ink, five sheets.
Simple machines, colored and shaded, seven sheets.

The shaded drawings are made with flat tints and the use of the conventional colors.

The curvature is brought out by the use of fine flat tints of India ink, of different degrees of intensity.

INSTRUCTION IN FREE-HAND DRAWING.

This instruction is given during four years, each student having a lesson of two hours per week, thus enabling him to execute a graduated series of exercises in the various kinds of imitative drawing.

It will be seen from what precedes that the student has already received a certain amount of literary instruction obtained by reading in the original a number of Latin and Greek authors, the Greek Testament, the modern languages, French and German, besides rhetoric and logic. This intellectual and moral culture, not confined within the limits of his prospective occupation, opens to the student here a larger horizon, and prepares him for the duties of civil and political life.

One of the most remarkable tendencies of the age is this intellectual ambition, this desire of parents of the middle class to see their children supplied with an instruction broader and deeper than their own; an instruction which, without losing sight of its practical object, prepares the young men for the various careers which the future has in store for them, by the aid of a system of study based upon the simultaneous culture of science and literature.

The next step is to enter the Polytechnic School.

CONDITIONS FOR ADMISSION.

In order to be admitted to the school the candidate must show that he is a French subject, or that he has been naturalized; that he is between the ages of sixteen and twenty, and free from physical defect; he must also present a diploma of Bachelor of Science or of Arts, and submit to two examinations upon the following subjects: —

Geometry (plain, solid, and spherical); surveying, and the use of the ordinary instruments; algebra, including progressions, logarithms, derived functions, the theory of equations, the theory of differences, the resolution of numerical equations, and decomposition of rational fractions; trigonometry; analytic geometry of two and three dimensions; descriptive geometry, mechanics and physics, inorganic chemistry, the French language, the German language, in which the student is required to know the principal rules of the grammar, to translate an easy text, to reply in German to simple questions, and also to present a German theme; drawing, in which the student is required to execute a drawing in descriptive geometry, a drawing after a model, and shaded in India ink; also a crayon sketch.

The first of these examinations serves to ascertain if the candidate has the requisite knowlege, and the second determines his rank.

The school is under military discipline, and the students are allowed to leave the establishment only twice each week. Each student pays per year the sum of one thousand francs.

COURSES OF LECTURES.

These are eleven in number.

1. Course of Analysis — Embracing the differential and integral calculus, with their applications to algebra, geometry, mechanics, and astronomy; also, the calculus of probabilities.

2. Course of Descriptive Geometry and Stereotomy. — This includes, during the first year, the representation of shades and shadows, the theory of developable and warped surfaces, the helicoids, descriptive geometry of one plane, and perspective; during the second year, the application to carpentry (joints and framing), and stone-cutting, construction of arches, domes and staircases.

3. Course of Mechanics and Machines. — This course for the first year is divided into three parts: kinematics, statics, and the calculation of the effect of machines.

The course for the second year treats of dynamics, the mechanics of fluids and machines.

4. Course of Physics. — During the first year, heat and dynamical electricity; during the second, acoustics and optics.

5. Inorganic and Organic Chemistry. — Their applications to manufactures.

6. Astronomy and Geodesy. — Including a description of the astronomical instruments, and the determination of latitude and longitude from observations. Geodesic calculations and operations, as the measurement of bases, levelling, and the construction of maps.

7. Architecture and Public Works. — Including the elements of edifices, constructions of iron, stone, and wood, also the composition of edifices. [*See Appendix A.*]

The course on public works consists of general notions of the construction of roads, bridges, railways, and canals.

8. Topography. — Comprehending the study of topographical forms, and their representation, with the construction of topographical and hydrographical maps.

9. Fortification and Military Art. — Temporary and permanent fortification, attack, defence, and strategy.

10. French Literature.

11. German Language.

WRITTEN EXERCISES.

The professors in the courses of analysis, mechanics and machines, chemistry, physics, and geodesy, assign, as often as once for every five lessons, a question to be treated in writing, and so chosen as to require frequent numerical applications.

MANIPULATIONS IN PHYSICS AND CHEMISTRY.

Each pupil executes thirty-six manipulations of three hours each in physics and chemistry.

GRAPHICAL WORKS.

There are regular detail drawings required upon the following courses: —

1. Descriptive Geometry. — These consist of the construction of the intersection of surfaces of the second degree; the shading of cones traversed by cylinders in various ways; also exercises in perspective, with shades and shadows.

2. Stereotomy. — Carpentry, including the construction of roofs, of centres for bridges, etc. Stone-cutting, including the construction in stone of portals, of oblique arches, of groined and cloistered arches, domes, staircases, etc.

3. Exercises in making sketches, and also finished drawings of machines.

4. Geodesy. — The delineation of maps, and the making of sun-dials from numerical data.

5. Architecture. — Consisting of the delineation of columns of the various orders, arcades, windows, porticos, and lastly, the project for a public library.

6. Topographical Drawing. — Construction of maps.

7. Shading in India Ink.

8. Free-hand Drawing and Landscape Sketching. — In each of the last three a model is placed before the student, and he has simply to copy it.

GENERAL DISPOSITIONS.

The lessons are usually an hour and a half in length; the last half-hour is set apart for questioning two of the students at the blackboard upon the subject of the lesson before the last.

On the table before the professor is an urn, containing one hundred and fifty balls, numbered according to the chairs in which the students sit; the professor selects at random a ball from the urn, and calls up the student occupying the chair corresponding to this number. The object of this is to find out who review the previous lesson before coming into the lecture-room.

The students are examined in each subject by the regularly appointed *répétiteurs* as often as once for every six lessons, and at the end of each half-year they are examined carefully over the whole ground by another set of men regularly appointed, called examiners, and their rank is made up from the whole.

The students submit to military drill twice a week during the summer months, thus enabling them to execute a graduated series of exercises.

Instruction in Free-hand Drawing. — This instruction is given during four years, the students having each week a lesson of two hours, thus enabling them to execute a graduated series of exercises.

COMPARISON BETWEEN THE UNIVERSITY AND THE POLYTECHNIC SCHOOL.

At the university the general instruction in science is wholly given by lectures, and it is incontestible that such instruction is not sufficient to make engineers.

Instruction by lectures can be thoroughly successful only when it is accompanied by frequent examinations, numerous experiments, and manipulations, graphical works, conferences upon the subjects of the course, solutions of problems under the eye of the professor, and the execution of a number of original constructive designs (projects). These different means should be so combined as to obtain the greatest possible results.

Let us compare the Sorbonne with the Polytechnic School. The same courses are given in each, and almost always by the same professors. The results, however, obtained from these two systems of instructions are entirely different. What we miss at the Sorbonne is those frequent examinations, the regular co-ordinate exercises required at the Polytechnic School. Reduced to its lectures, the latter would soon lose the privilege which it possesses of furnishing France with men capable of rendering her the greatest service.

SCHOOLS OF APPLICATION.

The graduates have a choice, according to their rank, of the following services, viz.: That of *Mines, Ponts et Chaussées, Génie Maritime, Génie*

Militaire, Hydrographie, Lignes Télégraphiques, Commissariat de Marine, Tabac, État Major, Artillerie, Marine.

To most of these civil and military services special schools are attached, in which the students immediately enter, and pass three years studying the specialty they have chosen. It is taken for granted, as the director of the studies said to me, that the students, when they graduate, are not fitted by their studies to enter upon any kind of practical service; they are only fitted in the best manner to commence the study of the application of the sciences of which they already know the principles, hence the necessity for the schools of application; one of these, which prepares for the civil service, will hereafter be described in detail.

There are usually admitted about one hundred and seventy-five, and the number of applicants exceeds one thousand. The students are furnished with lithographic impressions of the lectures of the professors previous to their examinations, so that they are not absolutely dependent upon the notes taken in the lecture-room, as is frequently the case in many of the other schools.

THE NATIONAL SCHOOL OF CIVIL ENGINEERING.

[*École des Ponts et Chaussées.*]

This school was founded by the celebrated engineer, Peronnet, in 1746, for the purpose of instructing in a more thorough manner the engineers of the kingdom, who had previously been organized under the title, "*Corps des Ponts et Chaussées.*"

The functions of this corps are as follows: First, to prepare the projects for the great public works undertaken by the state, such as river and harbor improvements, lighthouses, roads, railroads, bridges, etc.; second, to superintend the construction of the works; third, to regulate the accounts and liquidate the expenses thus incurred.

Private companies executing similar enterprises have frequently intrusted their works, by an authorization of the government, to *Ingénieurs des Ponts et Chaussées*, these engineers being in effect temporarily detached from the service, without losing either their rank or their right to advancement.

Admission. — For the last eighty years, twenty students, selected annually from the *élite* of the graduates of the Polytechnic School, have been admitted into the school of roads and bridges; these, after graduation, enter the " *Corps des Ponts et Chaussées.*"

Internal Régime. — The internal *régime* is that of semi-liberty, forming a transition between the previous military discipline of the Polytechnic School and the complete emancipation of the young graduate, influenced by a sense of duty and responsibility.

The students lodge and take their meals in the city, and are required to be present at the school from November to June, daily, from the hours 8 45 a. m. to 5 p. m., except one hour for breakfast, and during this time no one is allowed to leave school without special permission from the officer of service.

Salary. — The salary of each student is 2,000 francs per year; at the end of his studies he receives the title of "ordinary engineer of the third class," with a salary of 2,500 francs, and is stationed in the country under the direction of a chief engineer.

DIRECTION AND ADMINISTRATION. — The director of the school is a general inspector of roads and bridges of the first class; a chief engineer, or general inspector of the second class, has the direction of the studies; these two, together with the professors, form the council which regulates the instruction and work of the students.

In addition, there is a superior council formed by the director and inspector of the school, six general inspectors, and three professors. The object of this latter council is to determine the rank of the students, and to suggest improvements in the instruction.

INSTRUCTION. — The instruction during the three sessions consists of courses of lectures given by fifteen professors; of *projets*, which are the special work of each student, and accessory exercises.

COURSES OF LECTURES. — The first year, or third class, has six courses; the second and third, five each. In addition, twenty lessons in English and the same number in German are given annually.

COURSE FIRST YEAR, THIRD CLASS.

	No. lectures.
Applied mechanics (resistance of materials)	40
Construction of roads	35
Agricultural hydraulics	35
Mineralogy and geology	30
Political economy	30
General processes of construction	12
Total	182

SECOND YEAR, SECOND CLASS.

	No. lectures.
Applied mechanics (hydraulics)	30
Construction (bridges)	34
Construction (internal improvement)	36
Steam-engines	25
Architecture	16
Total	141

THIRD YEAR, FIRST CLASS.

	No. lectures.
Railways	35
Construction (coast and harbor improvements)	35
Administrative law	40
Applied chemistry	9
Fortification	16
Total	135
Total number of lectures	458

PROJETS.

The most important part of the instruction, and that to which everything else is made subservient, is given by *projets;* these consist of exercises in construction and design, involving the determination of the strength, dimensions, and proper proportions of the parts, either by graphical methods or by computation.

The *projet* is the characteristic feature of the instruction in the European technical schools, and their students employ from one half to two thirds of their whole time in making the researches, computations, drawings, and memoirs, which unite to form what is called a *projet.* To give a clear idea of the nature of these problems of construction and design, the programme of one selected from the French collection is here annexed, as an example, to illustrate the meaning of the word *projet.*

COURSE IN ARCHITECTURE.

First Elements of Edifices. — Nature and strength of stone and brick; limes, cement, and mortar; plaster; foundations; walls; columns; different orders of pilasters; arcades; doors and windows; basements and attics; cornices; pediments; balustrades; ceilings; arches, etc.

Wooden Construction. — Strength of the materials; joints and framing; floors and roofs.

Iron Construction. — Strength of wrought and cast iron and steel; employment in columns, floors, and roofs.

Composition — Porticos; vestibules; staircases; halls; courts.

Heating, lighting, and ventilation of edifices.

HISTORY OF ARCHITECTURE.

During the lectures the students sketch the drawings made by the professor upon the blackboard, and from time to time problems or exercises are given.

I will now give you the detailed programme of a single problem, so that you may judge for yourselves of the work.

PROJECT FOR THE CONSTRUCTION OF A CRYSTAL PALACE.

It is required to furnish the plans, and the requisite computations for the construction of a crystal palace. This edifice is designed like the palace at Sydenham, near London, for the reception of various scientific collections, and also for the permanent exhibition of the most remarkable specimens of the industrial and the fine arts. We suppose the site to be in the Bois de Boulogne upon a suitable eminence at the extremity of the Great Lake.

The palace should contain, —

First. A spacious vestibule, in which may be placed the offices, a police station, rooms for firemen, engines, etc.

Second. A grand nave or central portion, having a clear span of forty metres, and a length of three hundred and fifty metres, intended to serve as a winter garden, arranged so as to give a vivid idea of the floras of the different portions of the globe, with fountains, basins, the reproduction of ancient edifices, also the appliances for concerts and public speaking.

Third The galleries for the exhibition of the different product : these should be divided into three principal portions, devoted respectively to art, to science, and to industry ; this last portion should contain half of the disposable space. The height and width of these galleries may vary from ten to twenty metres They should present an agreeable appearance, should be easy of access, and provided with an abundance of light, that the various products may be seen to advantage.

Fourth. Two or three refreshment halls, with kitchen, saloons, and private rooms.

Fifth. The apparatus for heating this vast extent, which should be placed below the level of the ground.

The edifice should be surrounded with terraces, ornamented with statues and fountains. These terraces should have a height of about thirty feet above the lake, with wide flights of steps leading down to the ordinary level.

The palace is to be constructed of glass and iron, except the basement, which is to be of cut stone and brick. It is to be covered by an iron roof, the trusses arranged according to the system of Polonceau, resting on cast-iron columns.

In calculating the requisite strength for each part, allowance should be made for the weight of a layer of snow ten inches in depth, and also for the mean pressure of the wind in this climate.

This project is divided into two parts. The first consists of a memoir and the sketches of the palace, as a whole and in detail. In the memoir, the arrangement of the parts should be clearly described, and the dimensions given to each of the principal pieces carefully verified.

(The computations of the moments of flexure and shearing strain should be given in detail, with the methods adopted for deducing the appropriate forms and dimensions of the rafters, purlins, ties, columns, etc.)

GRAPHICAL WORK.

The students are required to furnish plans of the edifice and its approaches, with detailed working drawings. These plans comprise a principal and a lateral elevation, to which should be added a transverse section on a larger scale.

The details, carefully drawn on a large scale, should include everything necessary for the complete construction of the edifice.

These drawings should be shaded in India ink, and the nature of the materials employed indicated by the conventional tints.

I have thus shown for one department only, viz , that of architecture, the preparation and the problems given to the students.

The Atelier system consists in the continued education of the student by the creation or selection of a series of problems best adapted to develop his faculties, under the oversight of a competent instructor, and accompanied by regular courses of lessons, illustrated by models, drawings, and photographs of existing structures.

Mr. Cady then read a paper by Mr. T. M. Clark, of Boston, entitled "A Sanitary House," as follows: —

A SANITARY HOUSE.

The duties of the architect in regard to the conditions of healthfulness, which should be sought for in dwelling-houses, differ somewhat from those of the sanitary engineer, or the so-called "house physician.' While he should earnestly strive to surpass them in knowledge, even of their special branches, he must never forget that a far more comprehensive trust is confided to him, — that of economy of the owner's money, convenience of arrangement for the business of the household, and, not the least, the symmetry of plan and beauty of proportion and decoration by which the highest, though not the most obvious or the best rewarded use of the architect in the world is fulfilled

The business of the specialist is to devise the most effectual means of accomplishing his own work, regardless of other considerations, and the necessary limitations under which he works are to him simply hindrances; while the architect, the chief worker, must balance in his mind all the specialists, allotting to one a larger, to another a smaller place, to fill up the complicated mosaic of means and ends, out of which he constructs a symmetrical form.

But if the true architect should not be a specialist in practice, he has the satisfaction of knowing that none of those who work under him to a common end have the power of accomplishing so much, even in their own province, as himself. A good architect can make a house, so far as it goes, nearly perfect in wholesomeness without the expenditure of a dollar for that particular end, while the best sanitarian cannot make a building salubrious, in which, through ignorance or carelessness, the essential conditions of dryness, aspect, arrangement, or proper construction have been disregarded, and it is with the hope of calling attention more particularly to the question of sanitation, as viewed from the architect's standpoint, of making some suggestions, and eliciting the experience of others upon points wherein the profession can, in their ordinary practice, do most effectual service in providing for the physical well-being of those who confide in them, that these remarks are offered.

The first great requirement of a wholesome house is a dry site. In one word, a house whose basement floor is damp with ground moisture, which stands over running water, even though the water be covered by a culvert of masonry, or in which the outside dampness penetrates the walls and trickles down the inner face, or ascends by capillary action into the portion above ground, is unfit to live in.

Architects, when tempted by the hope of a commission to assent to the views of owners, who, desirous of utilizing a doubtful spot of ground, talk indefinitely about the ease with which it can be made "all right," by constructing culverts, dry drains, and the like, would do well to remember the French law, which makes the professional man responsible for the evil results which follow from his withholding the warnings which his superior knowledge would suggest, even though such warnings may be distasteful to his client, and consequently detrimental to his own selfish interest.

Even after the dry, open soil for the location of the house is secured, much more is necessary to insure a cellar free from dampness.

The ground water must be kept always below the basement floor by some means, and the streams which work their way through the earth after rains must be prevented from penetrating the walls. To accomplish these objects thoroughly, the excavation for basements should always be made at least six inches larger all around than the extreme outside of the walls. The trenches should be dug two feet below the cellar bottom and a drain of tile or broken stone placed at this depth, with a regular grade, and pipe carried to a good outfall, except in the very driest soils, where water enough could never collect in them to flow. Two feet is the least permissible depth for this drain. The ground water rises after the spring rains, like the tide in a marsh, and unless its level is kept well down under the edges of the building, it will ascend by capillary attraction high enough in the middle to reach the cellar floor.

The practice of carrying drain tile around inside the wall, though better than nothing, and often the only thing that can be done in a structure already built, is less efficient than placing the drain under the wall itself. The inside pipes can seldom be laid low enough to insure the dryness of the whole floor, without danger of undermining the footings of the wall, which ordinarily extend only six or eight inches below the cellar bottom, and at best they do little to prevent the wall itself from being bathed with ground water at certain seasons, and imparting its own dampness to the air and masonry of the house. A line of tiles outside is better, but much more expensive, especially if the perimeter is made large enough to enclose the building at such a distance as to enable the drain to be laid at a proper depth without danger of undermining the wall.

The drains beneath the wall must be executed with care, and masons generally view them with unfavorable eyes, but a little ingenuity will avoid danger to the superstructure. However improbable it may seem at first glance, a body of broken stone thrown into a trench in moderately hard ground, and well rammed down, will support a heavy wall without settlement, and with the heaviest superstructure a conduit can always be managed through the footings by employing large stones, laid dry, instead of bedding them in the useless stratum of half an inch of cement, which is often, for form's sake, spread out to form the resting-place of a two-ton leveller.

The lower part of the trenches being thus occupied with a permeable mass, in which water can collect and be drained away safely, the upper portion of the basement wall is to be begun, of close masonry, well filled with cement mortar. The cement wall should extend six inches below the finished cellar bottom. Then the concrete of the floor, joining the masonry all around, will form a tight box, inside the water circulation. Where the cement wall starts from only two inches or so below the concrete, as will be the case unless the workmen are looked after, the probability is that some open joints will be left, or form themselves, through which vapor from the accumulated water outside, or ground emanations, will pass to an injurious extent into the house.

The wall itself will be built of granite or gneiss. Slate is hard, and very impervious in itself, but its very imperviousness gives it the property of condensing water from the air so rapidly that it will sometimes run down in streams, and it is so brittle that after the weight is added, the larger stones, which may form the whole thickness of the wall, will often crack entirely through, causing a leak which it is almost impossible to stop.

Care should be taken, by clear directions and rigid inspection, that the smoothest and straightest faces of the stones are laid outside, that the joints are all filled with mortar, and the outer face thoroughly pointed with the trowel, in the manner which bricklayers call "weather pointing"; that is, with the trowel held obliquely, so that each joint recedes or "batters" in its height By this means the upper stone overhangs the joint, and water running down the face of the wall drips off, without being able to insinuate itself behind the top edge of the pointing, and falling upon the inclined surface of the cement, is carried out by the slope to the outer edge of the next stone below, over which it runs without finding a resting-place on top of the stone, from which it may work its way into the wall.

If the outer face of the stone-work is smooth, not only will the large quantity of water which always collects around new buildings run quickly down the outside of the wall without stopping to do mischief, but it will be far less likely to be injured by the action of frost, which soon affects rough walls, whose projections entangle them with the movements of the frozen earth. The extra width of the trench necessary to enable the outside pointing to be done is then filled with gravel, which helps to accelerate the descent of water to the drains, and intercepts and diffuses streams of spring water in the ground before they reach the wall, which they would otherwise soon penetrate by their continual soaking.

A thick layer of good concrete over the basement floor. brought well up to the walls, completes the isolation of the building from the noxious influences of the ground air and water The concrete should be graded to a convenient point for collecting water which may come through the windows from rain, or from a burst pipe. Generally, a gutter formed a foot or so from the wall all around is the best arrangement.

As to providing an outlet for water so collected, circumstances must decide. In dwelling-houses in the country a pipe with trap and strainer may be put in, leading to a dry well or trench filled with loose stones. but it is quite as well omitted in most cases. If the ground water is properly taken care of in the other ways mentioned, the danger of any accumulation in the cellar which could not be removed with a pail and sponge is extremely slight. and there is a disadvantage in opening communication between the basement and the outer soil.

In city warehouses, where valuable goods are stored, it is necessary to secure the basement against flooding, and the only resource is an outlet to the sewer, protected by as sufficient a trap as possible; Bower's trap or Waring's valve would be the best, if they could be procured large enough; but no possible protection can justify the opening of the basement of a city dwelling-house to the sewer. Far better run the infinitesimal risk of slight damage from a burst pipe now and then than to open such an inlet into the cellar, from which the air is in cold weather drawn abundantly into the upper part of the house.

Our model dwelling would take the safe side, and be without any outlet whatever. Windows, whose sills should be far enough above ground to prevent any possibility of melted snow getting in, would light every corner, admitting sunshine wherever practicable. The earth outside would be graded with a good slope away from the walls, and concreted, or at least well sodded, for a foot or two from the wall all around, to turn off water running down the walls.

With these precautions in construction, joined to a vigorous opposition to any designs of the owner or builder for providing dark cupboards, closets, shelves, refrigerators or other nuisances, where old bottles, boots, apples and cockroaches may fester and decay unmolested, it is possible to secure a pure atmosphere for the part of the house which needs it the most. Coal, especially when wet, will sometimes give off sulphurous acid vapors; therefore the coal-bins will be removed from the cellar and placed in a separate vault, with gratings to the outer air, and communicating with the rest of the basement by a ventilated passage and door. Refrigerators, if built into the house, form a centre of pernicious dampness; therefore they will be excluded, and a light, airy room provided in a convenient spot, where portable ones may stand. The melting ice from these drains either into a pail or by a pipe directly into the outer air, never into any waste pipe which communicates with the drain.

The arrangement of the rooms above will depend upon the skill of the architect. No one needs to be told that sunshine, with means for supply of fresh air and withdrawal of foul, are sanitary necessities for every inhabited room; the talent of the designer will be shown by his success in securing them. Our model house would have at least one south window in every room, and all windows should reach to within six inches of the ceiling. By this means, not only will great advantage be obtained in ventilation through the sweeping away from the ceiling, every time the upper part of the window is opened, of the clinging organic vapors which collect there and remain stagnant in lofty rooms with windows less than the full height, but the additional cheerfulness of the brightly lighted ceiling is a matter of considerable sanitary importance.

Over the construction of the inhabited part of the building the architect has little influence, so that it is not of much use to point out the grave defects of the common plastered ceilings, furrings, and partitions, but every one knows from experience that the nuisances which afflict dwelling-houses inevitably come from behind some plastering, where they have been previously accumulating and spreading for an unknown period. Who has not known cats or rats to be imprisoned between floor and ceiling, to die and decompose there? And if the nuisance thus caused is so intolerable as to make the house uninhabitable for a time, must not the aggregate of the decompositions of beetles, flies, organic dust, the offal of mice and rats, constantly exert a perceptible influence? The space between the floor beams, where hot-water pipes pass, may often be found crowded with dead and living water-bugs and roaches, and there are few houses twenty years old where an opening into the space behind any furrings will not reveal to the nose evidence of the existence of something similarly objectionable.

The best remedy for all this would be to abolish all furrings and dark spaces whatever.

With hollow brick walls, plastered on the brickwork, and floors of planed girders and planks, no such concealed nuisances could exist, and nothing but a long-handled broom would be necessary to keep the structure of dwelling-houses as free from disease-breeding filth as is that of hospitals.

Our model house should certainly be so built. The hollow walls would serve to carry fresh air to supply, either directly or through tubes exposed to the heat of the fire, the various rooms, from which it would escape by the fireplace itself. The size of these inlets should be so calculated that their united area would somewhat more than equal twice that of the chimney flue.

A pair of flues would then be provided for each room, one to serve the fireplace, and the other opening by a grating near the top of the room.

The flues for a small room would each be eight by twelve inches, and the aggregate area of the inlets might be two hundred and fifty square inches. If a hot-air furnace were used, the register would take the place of all or a part of the other fresh-air inlets, but its box would be arranged with a double pipe, one from the air chamber of the furnace, and the other from out of doors directly, and the regulating valve would consist of a flap or slide moving between the two pipes, so that as far as the hot air was shut off, the cold air would be opened, the total inward current of fresh air remaining always the same, whether it were hot, cold, or a mixture of the two, and the shutting off of all air being impossible.

The floors of the house would consist of three-inch pine plank, laid on girders six to eight feet apart, all finished and visible on the under side, and would be covered with matched boards of maple or pitch pine, in two and one half inch strips, and soaked with hot linseed oil, then rubbed down. The partitions would be of studding, trussed where necessary, and filled in with concrete blocks, or of concrete blocks alone, and finished with a thin coat of plaster. Lighter portions would be panelled.

All air spaces in the walls would have openings both at top and bottom, to insure a rapid circulation of air in them; thus condensed moisture, or the natural dampness of new mortar, would be quickly dried, and the pores of the wall kept constantly open.

For the sake, also, of maintaining the free passage of air through the wall, no oil paint would be allowed upon it. A simple tint, or the bare plaster would suffice for the inferior rooms. For the better apartments the walls would be hung with silk or other textile fabrics, the ceiling only being decorated with panels painted on the under side of the planks, or on separate pieces of canvas and inserted in their places.

Gas pipes would, so far as possible, be abolished, no satisfactory joint for fixtures having yet been made known to sanitarians, but where required they would run in the ventilated air spaces of the walls, selecting those which did not supply fresh air to the rooms.

Plumbing would be freely introduced, but always in dressing-rooms, separated from the sleeping-apartments, and in or connected with every bedroom or dressing-room would be a small cupboard with tight fitting door, through which, by means of gratings above and below, passed a constant current of air from the flues of the wall. This would serve for keeping such offensive objects as are sometimes unavoidable in bedrooms.

The same air spaces of the wall would be utilized, and their warmth made useful to the adjoining flues, by arranging some of them to carry off the products of combustion from the gas or other lights.

The attic would be used for sleeping-rooms rarely, if at all, but would be abundantly lighted, and a large ventilator, adjustable from below, would be placed in the roof just over the upper flight of stairs. This would, either in cold or hot weather, serve to change the air of the halls, but a sufficient fresh-air inlet, in the shape of a window or large register, must be provided in the lower hall Otherwise, air which has already been used will be drawn into the stairways from the rooms, and the ventilation of the rooms themselves will be disturbed.

The roof will be of good pitch, and covered with matched planks, two thicknesses of tarred felt, and slates laid in cement, a roofing as far superior to ordinary slating as tin is better than paper.

The mode of heating will depend on circumstances. If the family who are to occupy the house are prosperous, and disposed to pay the extra cost of keeping up fires in all the rooms, ventilating stoves or fireplaces on the so-called "fire on the hearth" principle will be exclusively used. These may be given any required artistic quality; indeed, with the use of tiles or marbles, and well-designed brasswork, a source of decorative motives is offered by such a heating apparatus, which is far richer than the simple fireplace and mantel can afford.

So with the gas brackets and chandeliers, the latter of which, instead of hanging heavily from the ceiling by a single apparently insecure point, will receive from the well-designed bells of silver or brass attached to the ceiling above them, which collect and carry off the products of combustion, the value and richness which manufacturers and decorators vainly try to give them by loading them with statuettes, bronze work and porcelain.

The furnace, if the necessities of the case required its use, would be of soapstone or terra-cotta, differing from those now made in possessing two or three independent air-chambers, each supplying its own portion of the house and no other. In this way there will be no danger of finding that the warm air cannot be made to flow into the exposed portions of the house in cold weather, an experience which is very common with the furnaces which present so large a radiating surface, and supply air, although abundantly, so little heated as we should desire in this case. The fresh-air supply will be taken for the several air-chambers by transverse branches from a main cold air trunk, which will run from end to end of the building in a straight line, open at each end, and provided with strainers of cotton or other fibre enclosed between two squares of wire netting. By this means the furnace will draw its supply of air steadily and quietly, without vibrating between the extremes of a vacuum which draws air down the registers instead of up, and a plenum, when the wind blows the other way, which drives the northwest gale over the house unwarmed, unless the damper is closed, which cures one fault, but results in the air being drawn from the cellar instead of from out of doors.

All the flues and air-spaces are smoothly plastered or struck inside, and the gratings into the ventilating flues are without registers.

In this way there will always be a current through the room, perhaps not very rapid, or very equable, but infinitely better than nothing, and if joined to an atmosphere which is constantly, though slowly changed, we can secure in all our rooms freedom from cavities and hiding-places for dirt, with a cellar atmosphere of absolute purity, and plenty of light and sunshine, there is not much more needed, with the efficient help which the plumbers can now afford us, to give to our dwellings, if not the perfect salubrity of a new hospital, at least a condition of wholesomeness far in advance of that now common.

Mr. Ware read a paper by Mr. E. T. Potter, of Newport, on "Examples of Staircases in Italy and America Contrasted," which, being of considerable length, is not here inserted.

The thanks of the convention were voted to the authors of the respective papers, which were referred to the Committee on Publications.

Mr. Stone offered a resolution that the Committee on Membership report a resolution for the consideration of the next convention, providing for such an alteration of the By-Laws as will create a grade of non-professional members. Referred to the Board of Trustees.

On motion of Mr. Ware, a resolution was adopted that from time to time, in the discretion of the Trustees, they should take measures to inform the members of the Institute regarding the business transacted by them.

A vote of thanks to the officers of the Equitable Company for their courtesy, and to the Commmittee of Arrangements, was then passed, and the convention adjourned *sine die.*

LIST OF OFFICERS AND STANDING COMMITTEES,

Elected for 1880.

PRESIDENT,

THOMAS U. WALTER, of Philadelphia.

TREASURER,

O. P. HATFIELD, of New York.

SECRETARY,

HENRY M. CONGDON, of New York.

SECRETARY FOR FOREIGN CORRESPONDENCE,

W. P. P. LONGFELLOW, of Boston.

(T. M. Clark, of Boston, during Mr. Longfellow's absence in Europe.)

TRUSTEES AT LARGE,

C. C. Haight, of New York,
R. M. Hunt, of New York,
J. C. Cady, of New York,
Wm. A. Potter, of New York.

COMMITTEE ON PUBLICATIONS,

E. T. Littell, of New York,
A. J. Bloor, of New York,
R. M. Upjohn, of New York,
T. M. Clark, of Boston,
J. McArthur, Jr., of Philadelphia.

COMMITTEE ON EDUCATION,

Prof. Russell Sturgis, of New York.
Prof. William R. Ware, of Boston.
Prof. N. Clifford Ricker, of Champaign, Ill.
Joseph M. Wilson, of Philadelphia.
H. H. Richardson, of Brookline, Mass.
W. P. P. Longfellow, of Boston.

COMMITTEES APPOINTED BY THE CHAIR.

ON COLONIAL ARCHITECTURE,

Geo. T. Mason, Jr., of Newport,
R. S. Peabody, of Boston,
W. P. P. Longfellow, of Boston,
C. F. McKim, of New York,
J. C. Cady, of New York.

ON TENEMENT HOUSES,

A. J. Bloor, of New York,
R. H. Robertson, of New York.

The convention of 1880 will be held in Philadelphia.